

PT7 cuts costs

FERRANTI Computer Systems

# Computer Weekly

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## IBM profits hit a record \$4.4bn

by Kevin Pearson  
IBM has posted record results and profits of over \$4 billion.  
The company showed major improvements in both sales and profit performance.  
Net profits for the year jumped 22% to just over \$4.4 billion, and sales rose from \$29 billion in 1981 to almost \$34.4 billion.  
The results confounded Wall Street analysts who last year predicted that IBM would not breach the \$34 billion sales barrier. However, the analysts are quick to point out that the company's results would not have looked so good had IBM not adopted the latest foreign currency translation accounting standards.  
The company estimates that the new standard added \$449 million to net profit in 1982 over what would have been recorded under the old standard. Recalculating

1981 performance on the same basis, profits would have been up by just over \$300 million.  
Fourth quarter results took profits to \$1.5 billion on sales of over \$11 billion, both quarterly records.  
The breakdown of IBM's sales increase of 18.2% reflects some interesting changes in the company's business activities.  
Gross income from sales rose by 30.3%, while revenues from its rental operations rose by only 2.6%, reflecting the company's switch in business emphasis from rentals to outright sales.  
Over the last year or so IBM has consistently cut the prices of most of its products in real terms, while at the same time increasing its rental charges.  
Revenues from other services rose by 20.6% giving an average of

18.2% overall.  
This performance compares with a very flat set of results over the last four years, where investments and product development costs have kept net profit margins very flat.  
But with US inflation varying from about five per cent now to 10% at the start of 1982 IBM's 22% profit rise looks very good. And the company is at the start of a very strong product cycle with its 3080 large systems and the 3380 disc products.  
Chief executive John Opel says that shipments of both these product ranges are very strong.  
But while Opel was ebullient over the results, he added that if currency rates had remained at constant 1981 levels then 1982's sales would have been \$1.8 billion higher than reported, and profits would have hit \$4.7 billion.

## Delay loses ICL two major orders

by Andrew Thomas  
ICL's delay in making its Content Addressable Filestore (CAFS) available under the VME operating system has cost the company two major orders from the BBC. The broadcasting authority runs ICL 2900 mainframes, and is in the process of installing new 2988 processors, but IBM and Datapoint have benefited from ICL's inability to deliver.  
The new BBC World Reporter service, a 41 gigabyte database containing news stories from around the world and intended for use by journalists, has been set up on Datapoint's IBM 3081 at Sunbury on Thames, and the BBC has just installed a computerised telephone directory enquiry system based on Datapoint hardware.  
Bob McLean, head of computer services at the BBC, says that he would have liked to have used CAFS for the system, but ICL

could not supply the requisite hardware.  
"At the time we were designing World Reporter, about three years ago," he says, "only CAFS 800 was available, and that only ran under the old 1900 emulator, DME.  
"I'm committed to running a VME-only service, so although CAFS was the best system to do the job, we had to go with the Status system from the UK Atomic Energy establishment at Harwell. I don't think we'll have CAFS until 1984 at the earliest."  
Datapoint has won an order for a 33-screen local area network based on its AIM software, and McLean sees this as another indictment of ICL's marketing strategy.  
ICL plans to commence deliveries of its CAFS ISP information server in the summer.

## LINE NOISE

ICL is paying the price for announcing a product 15 months early. University users of its £20,000 Perq personal computer are complaining that their machines are gathering dust while they wait for ICL and the Science and Engineering Research Council to produce the Unix-like operating system, PNK, promised when the Perq was launched in 1981. Some are waiting for PNK rather than programming under the Perq's Pos system and then having to convert. PNK is on trial at some sites, four months late. The good news is that users say the machine is first-rate. And the US firm which designed it, Three Rivers Computer Company, could sell PNK in the US for ICL.

The company's Content Addressable Filestore (CAFS), a nice piece of technology which, unfortunately, cannot be judged a commercial success, seems to be rather under a cloud. Not only has the BBC ignored it for two major projects for which it would have seemed ideal, but the university from within the walls of ICL itself is that the device is not long for this world. If these stories are to be believed (and ICL officially denies them), can CAFS really be cleverer than even more successful stablemates, the Distributed Array Processor, be far behind in the race to the scrapheap?

While anguished discussion between the BTG and the DoI continue about the future of Immos word in the House of Commons and in Silicon Valley is that the government is seeking a new chairman for the company. Current chairman is Richard Petritz, who with the UK's Iana Barron and departed designer Paul Schroeder were the founders of Immos. Petritz last year survived a bid to remove him, but this year, with an unscheduled request for £15 million being before them, and miles of political embarrassment behind them, the UK government ministers are more likely to insist on their terms for continuing to support the company.

## Magnuson investigation

MAGNUSON Computer Systems is under investigation by the US Securities and Exchange Commission, which oversees the stock markets, as the firm's troubles continue to mount.  
The exact nature of the investigation is unknown, although Magnuson employees have reportedly been asked to provide information to the Commission.  
The company recently announced that it had ceased work on a next-generation IBM-compatible system.

## DEC dealers press for better information

by John Kavanagh  
DIGITAL Equipment distributors are getting together to press the US manufacturer for more information on its product plans. The 10 "official" UK distributors meet at top management level, and DEC is taking the group seriously, sending "very senior" people to the meetings.  
"It is important for us to have an idea of DEC's long-term plans," said Brian Andrews, managing director of Applied Computer Systems, one of the group. "It is difficult to get information from the company, but as a group we have applied pressure quite successfully."  
"DEC has taken the authorised computer distributor programme very seriously. It has many strict rules for the distributors in terms of how they run their businesses, so it is important that DEC reciprocates with information."

Andrews said the group had an amicable relationship with DEC. Group members also swap ideas and even exchange sales leads. "My company has never been in competition with any other distributor," he said. "That has something to do with the way DEC has set up the programme."  
DEC said it was "very happy" with the formation of the group, which it saw as a positive step which should improve contact

## Govt buys sixth Cray

by Kevin Cahill  
THE UK will shortly acquire its sixth "official" Cray 1S supercomputer when the Ministry of Defence takes delivery of a machine in March.

The Cray 1S is the fastest scientific computer in the world, processing floating point instructions at a rate of 20 to 140 megaflops, roughly equivalent to a MIPS rating of 200.

The machine complete costs between £3 million and £10 million. The UK system will be delivered to the Royal Armaments Research Establishment at Portsmouth.

Kent, where it will be used to help design primarily conventional armaments.

Portsmouth is part of the procurement division of the Ministry of Defence.

The RARE machine is the second Cray in the UK military system. The other "official" machine is at the Atomic Weapons Research Establishment at Aldermaston.

There are unconfirmed rumours of a third Cray at the Government Communications Headquarters at Cheltenham, otherwise known as "the Spy HQ".

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Rhymney Valley

COATES: Wanted to tender

## NatSemi pulls out of State firm

by Jack Gee and Kevin Pearson  
NATIONAL Semiconductor has withdrawn under pressure from the French government from a joint venture with industry to make computer components, leaving Motorola and Intel still in similar partnerships.

Government-controlled son-CSF paid the symbolic FF1 - about 10p - for NatSemi's 49% stake in Eurotechnique. Nationalised Saint Gobain received FF51 million from son for its 51% share.

Motorola remains in its partnership with Thomson and Harris and Intel continues its partnership with Matra, also owned by the French government. The other French component, any size is Radiotechnique, a subsidiary of Philips.

The new arrangement at that Thomson and Matra own France's modest computer industry. Both have yet to make any contribution to the ambitious national economic plan to the government is now pushing finishing touches.

Eurotechnique's turnover is low FF100 million. Thomson have to pay heavy royalties to NatSemi patents.

Bob Heikes, NatSemi's European president said that the "ment had been reached" "goodwill on both sides".

He added "We have technology payments due to us. We will continue to receive them from the technology we have" to Eurotechnique.

Eurotechnique has been in ing memories and microcomputers with a staff of 465 employees the past two years.

Up to 300 jobs in developing office automation software

## DEC puts faith in UK with a £7m centre

by John Kavanagh  
THE UK has been picked by the microcomputer giant Digital Equipment for its first research and development centre outside the US. Up to 300 jobs will be created in the next four years at the £7 million centre, which will develop office automation software for the worldwide markets.

The investment is expected to run to tens of millions of pounds over the next five years.

UK research will cover areas ranging from voice recognition to the integration of telex and telephone communication into DEC's office automation systems. The company has not ruled out the possibility of building its own digital private telephone exchange.

The centre is being built near DEC's UK headquarters in Reading, where the company has 120 software staff who have recently started to specialise in office automation and communications. But this latest move will increase competition for scarce computing professionals and graduates - at a time when the government is cutting back on university spending (see back page).

"Office automation and personal computers are the two areas of key importance to our company, and the Reading centre will make a key contribution," said Darryl Barbe, managing director of DEC in the UK. "We are looking forward to becoming a leading supplier of office automation based on British investment and British expertise."

LAMONT... "Shortage of skills"

## Govt holds down BT prices

by Donald Kennett  
PRICE increases on most of British Telecom's services will be kept below inflation for at least five years once its shares are sold to private investors.

The government said this week that it would insist on this interim measure to ensure consumers and small businesses are protected against possible abuse by BT of its dominant position.

After five years, increased competitive pressures resulting from a package of changes announced in Parliament on Monday are expected to control BT's activities.

The measures, announced by Information Technology Minister Kenneth Baker, include the removal of BT's monopoly supply of the

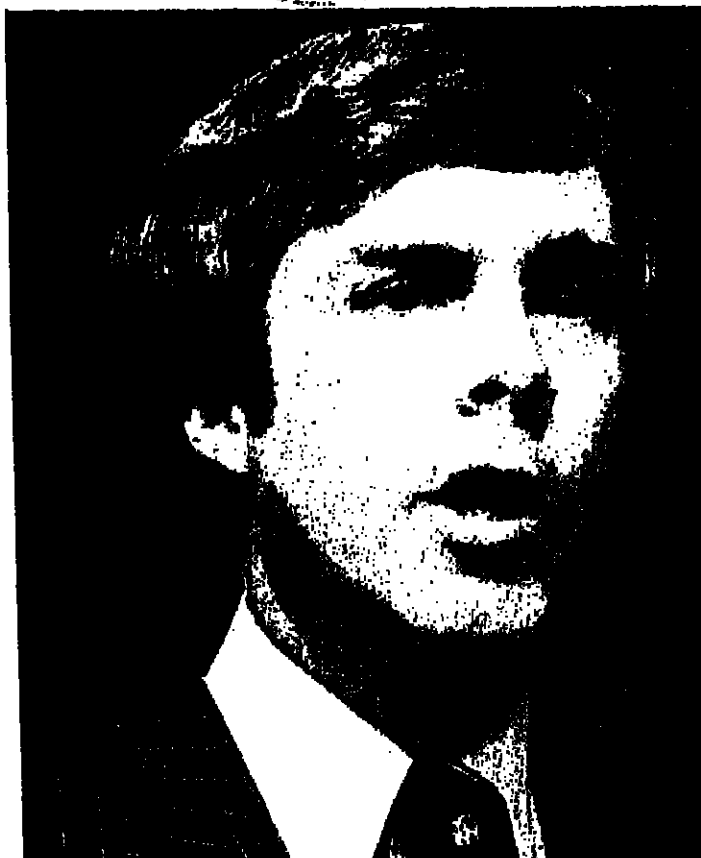
first telephone on any exchange line and on maintenance of new private exchanges; greater freedom in international connections for BT's rival Mercury; and the freedom to resell capacity on private leased circuits on terms to be negotiated with BT.

Baker also said that competing public networks such as Mercury, the two cellular radio telephone services, and possibly an additional privately-run satellite network should pay access fees to BT in return for the right to connect to its local network. BT's own trunk network division would have to pay the same fees, which should not discriminate according to how much competition there was on a particular route, but which could

be volume-related.  
The fees would cover the costs of loss-making emergency and call-box services and would be a highly desirable alternative to public subsidy, he said.

The changes are the result of a report on how to limit the ill-effects of BT's dominant position that the Department of Industry commissioned from Professor Stephen Littlechild, of Birmingham University in October.

The government accepts his basic conclusion that competition is by far the most effective protection against the exercise of monopoly power and agrees with his rejection of three reports on the subject that the DoI had commissioned previously.



BARBE... "UK software technology as good as anywhere"

## IBM pressured to replace System 34

by Kevin Pearson  
IBM is coming under increasing pressure from rival manufacturers to replace its ageing System 34.

Wang, one of the leading office automation companies, has announced the first UK success of its concerted marketing drive to get System 34 users to move to its VS Series rather than to IBM's own System 38. And Sperry Univac has launched a series of conversion aids to assist users to move from System 34 to its System 80 - and the aids are free of charge to users.

Late in 1982 Wang began a substantial marketing campaign with advertisements and seminars aimed at converting IBM users to the Wang data processing fold. The campaign has now reaped its first UK success with BMM Weston, a Kent-based heavy engineering concern. The order is worth £117,000, and it replaces an IBM System 34 with a Wang VS 90.

Installation is planned for the second quarter.

BMM's DP manager, Gerry Kelly, explained that while the price of System 38 was roughly comparable with that of the VS system, the latter out-performed

the IBM machine in several important areas, including word processing.

Sperry is offering a whole range of RFG2 conversion aids to users of System 34 as an incentive to change camps.

IBM is believed to have a genuine System 34 replacement available, which combines some of the advanced facilities of the System 38, but with a much greater level of System 34 compatibility.

## Four micros from ICL this week

ICL is to introduce four new microcomputers this week. The machines are based on the Intel 8085 chip, which is an 8-bit processor, although ICL says there will be a 16-bit option with it.

The machines are all designed and supplied within the terms of ICL's existing design contract with Rair, although ICL is likely to build the machines in the company's own plants, rather than subcontract via Rair.

## Cheapest telex

A SURVEY of international telecommunications charges run by the Observer and tariff analysts National Utility Services has shown British Telecom to be by far the cheapest for telex calls - cheaper than most on international and trunk telephone calls but most expensive on local telephone calls.

## Video protest

BRITISH Telecom Unions Council has denounced a management video on the privatisation of BT as political propaganda. The video is being shown to BT staff during work time and the council has called on its members to refuse to watch it unless one of the union videos is shown at the same time. Bryan Stanley, the general secretary of the Post Office Engineering Union, objected strongly to the lack of consultation in the making and showing of the video.

## 'Live' magazine

MICRONET 800, the viewdata magazine for micro users, is to go live at the end of this month, when the first models in the range of £50 adapters become available. It will cost £8 a quarter to subscribe but computer time will be free during off-peak hours. The target is to attract 100,000 users.

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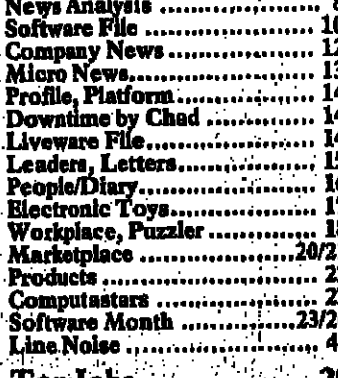
Amdahl takes an optimistic view of 1983



NEDO call to pool R&D effort



Software Month looks at IBM



Top Jobs Job Vacancies

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# Sperry fights to stay independent

Kevin Cahill looks at a firm's changing financial fortunes

A BATTERED Sperry Corp heaved a corporate sign of relief last week at news of the \$480 million US Air Force order for its computer division.

The order, which will be worth \$100 million a year in hardware alone over four and a half years, will go some way towards stabilising the fortunes of Sperry Univac, the corporation's computer subsidiary.

Last year Sperry was virtually the only major computer vendor in the US to suffer a fall in market value on the US Stock Exchanges.

According to the annual investment score book produced by the American magazine *Business Week*, Sperry in 1982 dropped 2% points

in terms of market valuation compared with IBM, which rose 54%, DEC, which rose 23%, and Honeywell, which rose 42%.

The market valuation is the share price multiplied by the number of shares issued and is a good indicator of how investors view the company.

A consensus of investment analysts taken by *Business Week* showed the finance men forecasting a drop of nearly 40% in earnings per share at Sperry for 1982/83 - from \$5.25 to \$3.45.

Admittedly the analysts are forecasting a 19% recovery to \$4.49 for 1983/84, which will give some comfort to the worried management.

Apart from the confidence problem, a weakened share price makes Sperry vulnerable to a takeover, and there are plenty of US corporations looking for cheap technology takeovers right now.

Foremost among the potential predators is the US based General Electric - not to be confused with the UK's GEC run by Lord Weinstock.

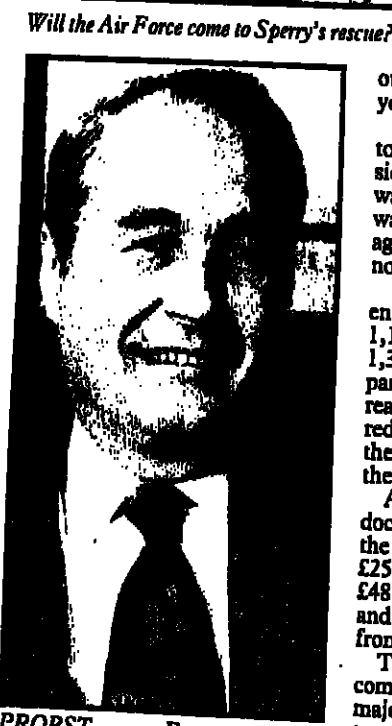
GEC recently got rid of its only remaining major non-technology subsidiary and has declared itself in pursuit of further technology acquisitions with over \$2 billion in the coffers to achieve its aims.

Although Sperry has not been named directly as a possible target, New York analysts have noted the company's vulnerability, heightened by the worse than expected third quarter results. Admittedly the Sperry Corp results incorporate major agricultural and other divisions which are suffering far more in the recession than the Sperry Univac subsidiary.

The corporation results for the third quarter, which followed a poor second quarter showed that profits fell from \$51.1 million in the same quarter last year to \$40 million, a 22% drop. Coming in the wake of the earlier slide of 75% to just \$25 million many analysts began to fear for the company's future.

According to Sperry's chairman, Gerald Probst, who took over from the ebullient Paul Lyer last year, a recovery in the remainder of the year is expected. He said that sales of both data processing equipment and defence sector electronics were "strong".

But the sales in those two sectors have to be balanced out against a



PROBST... Recovery in remainder of year is expected.

31% drop in sales in the agricultural machinery sector, and 24% in the hydraulics engineering field.

American commentators have also suggested that Sperry Corp should focus on its two profitable sectors, computers and defence electronics, and divest itself of the machinery and engineering divisions.

Sperry seemed to have taken that kind of advice when it disposed of its UK Sperry Gyroscopes division.

But in public the corporate management is resisting the call for divestment, and Probst is doggedly maintaining an optimistic

outlook for an improvement this year.

In the UK Sperry is having a tough time. Overall the UK subsidiary has lost over 260 staff by way of redundancies and natural wastage since May 1982, but management says that recruitment has now started again.

The company's payroll at the end of December was down to 1,128, against a planned level of 1,390, according to internal company documents. Part of the reason for the "gentle" wave of redundancies was a dramatic fall in the order intake at the company in the first nine months of the year.

Again, according to company documentation, orders booked to the end of December were worth £25.7 million, against a target of £48.7 million for the nine months and a full year target revised down from £74 million to £56 million.

To balance that picture out, the company is known to have two major upgrades with existing customers, Abbey National Building Society and the Trustee Savings Bank Group, ready to sign. The combined value of the two orders is put at £20 million.

In addition there are five other major orders which Sperry hopes to announce within the next few months, helping to offset a tough period in the market place.

While order bookings have slid, revenues - the mix of income from sales, rentals, maintenance and other sources - has held up well at £44 million against a target of £52 million for the nine months, the company documents show.

While critics outside the company cite Sperry's "failure" to follow the lead to small distributed systems set by ICL and others as

the main cause of its trouble, Sperry Univac's UK managing director Bill Read remains a dedicated mainframe man.

Writing recently in *Computer Weekly*, he said that the market is here to stay. He pointed out that while the market for minis was growing, the market for mainframes was growing too.

"Small computing units offer individual users considerably localised power," Read was "but in most cases, a mainframe is needed to process and reduce data so that it can be used as an effective corporate tool."

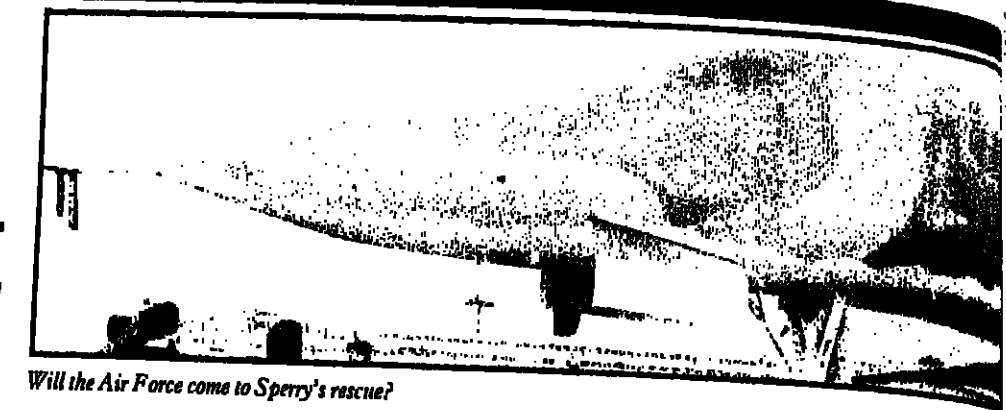
It remains to be seen whether Read is right, or whether the world will drown in a tide of micros.

The race into the personal micro and desktop processor marketplace among the big manufacturers is being won by DEC and IBM. Sperry has been reluctant to enter this market and it must be wondering if it has made the wrong decision.

It has certainly shown a high degree of vulnerability to the recession and it will be looking with envy as DEC and IBM gear up their projected output of 20,000 small machines a month each.

While unwilling to comment officially on the UK figures as it is leased to *Computer Weekly*, a spokesman for Sperry Univac said that the measures so far taken, together with the orders expected to be announced in the next few months were adequate to put the company back on course.

Dr John Ludley, the president of the Sperry Univac European Users group, said he had experienced no deterioration in service or support.



Will the Air Force come to Sperry's rescue?

# CDC bids for 'super' leadership

by Kavan Pearson  
CONTROL DATA is stepping up its battle with Cray Research for leadership in the supercomputer field.

The company will announce next week new models in its Cyber 205 range, offering up to twice the main memory available on current models. It will also announce memory price cuts resulting from the use of 16 Kbit MOS (metallic oxide semiconductor) chips.

The new 205 Series 600 supercomputers can store up to eight million 64-bit words, equivalent to 64 Mbytes, and can have up to two gigabytes of virtual storage.

The 16 Kbit MOS chips are considerably cheaper than the older 4 Kbit bipolar chips they replace, and CDC expects to cut over 60% from the cost of main memory. Prices of the new models will start from under £3 million, and first customer shipments are expected to begin in the first quarter of 1984.

Existing machines may be able to use the new chips for memory upgrades, says Richard Hickman, CDC's UK computer systems division manager, but it will depend on the amount of memory already installed. "It might be possible to run both types of memory alongside each other but it will depend on the initial configuration".

Amdahl is currently converting the programs to run on its more modern 470.

He added that a version of the 205 offering twice the performance of existing machines will also be available next year. Currently 205s including the Series 600, run at 400 megafloating point operations a second (megaflops). The more powerful machine will run at up to 800 megaflops.

The company recently completed a test of one of the new machines using four parallel pipelines to process instructions simultaneously. The test established a new record for computer performance and is due to appear in the Guinness Book of Records.

CDC has installed eleven 205s worldwide since the machine's introduction in 1980. This compares with about 57 Cray 1s since 1976. The UK is to get another 205 in April when Manchester University Regional Computer Centre takes delivery of its fourth CDC computer.

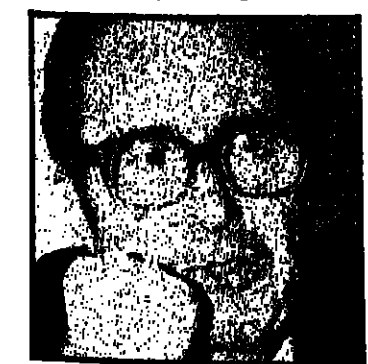
The machine will be front-ended by an Amdahl 470 processor with a 4705 communications controller. The 470 will run CDC software originally developed for the IBM 370 mainframe at the UK Meteorological Office where the first 205 was installed.

Amdahl is currently converting the programs to run on its more modern 470.

# Govt cuts BTG funds by £15 million

by Kavan Pearson  
THE government is to cut its financial support for the British Technology Group to £10 million in the 1983/4 financial year, from £25 million this year.

The Group, whose future is being reviewed by the government,



WOOD... Concerned.

# Half of jobs saved at failed systems house

by John Kavanagh  
ABS COMPUTERS is saving nearly half of the jobs at one of its 20 systems houses, Rika Computer Systems, which has gone into liquidation.

The UK business minicomputer manufacturer will either back the formation of a new company around the three directors and 11 staff, or use Rika's Nottingham headquarters as the launch-pad for a move to the eastern half of the country.

ABS has main offices in Manchester, Bristol, Rugby, Rickmansworth, Woking and Brighton.

"It is also taking on the support of the 10 Rika customers with ABS machines."

"Rika made 18 people redundant and we are prepared to underwrite the retention of the remaining staff in some way," said ABS' commercial director, Patrick Kearney. "This is an opportunity for us: the people know our Simple language and our equipment. We wouldn't like to see that team breaking up."

Kearney said Rika's managing director, Roger Edwards, was one of the people being retained. He added that Rika had suffered the "normal problems" of cashflow. "Creditors were due to meet this week to appoint a liquidator," Kearney said. ABS was owed about £2,300. Other creditors include NCR and several microcomputer suppliers.

# Revamp at Aregon aims to serve PTTs

by George Black  
VIEWDATA specialist Aregon has set up a business consultancy division. The Aregon group, which is predicting annual results of about £5 million, aims to build up a division of 15 to 20 consultants in the second quarter of the year to serve PTTs round the world and corporations closer to home.

Hiary Thomas, who will head the division, was a director of New York-based CSP International, specialising in viewdata, for seven years before joining Aregon.

Chairman John Pearce said that Aregon would be going it alone in the international PTT field, since British Telecom's withdrawal. Ties with Systems Designers, which developed the IVS-3 system for DBC PDP-11 machines and marketed it for Aregon, had now been cut, he added.

Managing director Anthony Chander has been in the US for the last nine months setting up a distributor network. Aregon's



PEARCE... Aregon is going it alone in the international PTT field.

American agents include DEC and would be among major expansion areas in the coming year, said Dow Jones. Banks and insurance companies Pearce.

# Data comms firms lead in US computer industry

by John Kavanagh  
DATA communications firms are leading the US computer industry in growth, productivity and export success. So says a report by the US company Newton-Evans Research.

The report shows that 16 companies, accounting for over 90% of US data communications equipment sales, had revenue growth of 31% in 1981. Early results for 1982 suggest even faster growth of 40% last year.

Exports accounted for 46% of sales in 1981, making the companies the most export-minded in the computing and communications business.

Productivity in terms of revenue per employee was second only to the peripherals sector, at over \$54,000.

Many new products are expected this year as a result of a doubling of research spending at four companies in 1981.

PHILIPS SIMPLY YEARS AHEAD

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Transfer of Scottish jobs is denied

# France to produce Sinclairs

by Jack Gee  
TIMEX-FRANCE is about to begin manufacturing Sinclair computers for the United States market. It hopes to expand its workforce at a time when the Norwegian owned multinational is shedding jobs at its Scottish factory.

But Jean Beaumont, managing director of the French subsidiary said, "There is absolutely no truth in claims that Timex is transferring work from Scotland to France. Each country is sufficiently bedevilled with employment problems without creating new ones."

Beaumont was commenting on statements from Scottish trade unionists that, with 1,900 jobs being made redundant in Dundee, the French government was using a cash bait of 900 million francs (£90 million) to encourage Timex to expand its French operations.

The Timex-France managing director said a decision to extend the product range of its plant at

Besancon, South-east France, hitherto confined to clocks and watches, was taken before the move to cut back in Dundee.

Beaumont added, "If plans go ahead according to schedule we ought to be able to create 900 new jobs over the next three years. The French government has promised us financial help to the tune of 150 million francs (£15 million) - not 900 million francs as the Scottish union is alleging."

Ken Gill, general secretary of the Amalgamated Union of Engineering Workers, Technical, Administrative and Supervisory Section, has said that developments at Dundee "illustrate the non-interventionist policy of the government, which contrasts with French policy, as well as the uncontrolled power of the multinational companies."

The union is looking to Sinclair to help boost employment in Dundee by bringing forward its plans to produce ancillary products to its computer range there.



GILL... "Uncontrolled power of multinationals"

## Survey renews attack on System 38

by Kevan Pearson

A XEPHON user survey has put the System 38 under fire again only nine months after IBM criticised the first survey on the system, as being unrepresentative.

The latest survey, covering 66 users - three times the number in the 1982 survey - says that only 17% of the survey population state that they have not suffered performance problems. But 76% claim to have "experienced performance problems of one kind or another".

System 38 Model 5 came in for most criticism, largely because it has been the largest selling model. Fifty-one Model 5s were included in the survey.

Among the major claims are that the system is "overloaded" or "under-powered".

One user commented, "A large proportion of machine resources are devoted to running IBM software. In particular security arrangements seem to be very cumbersome."

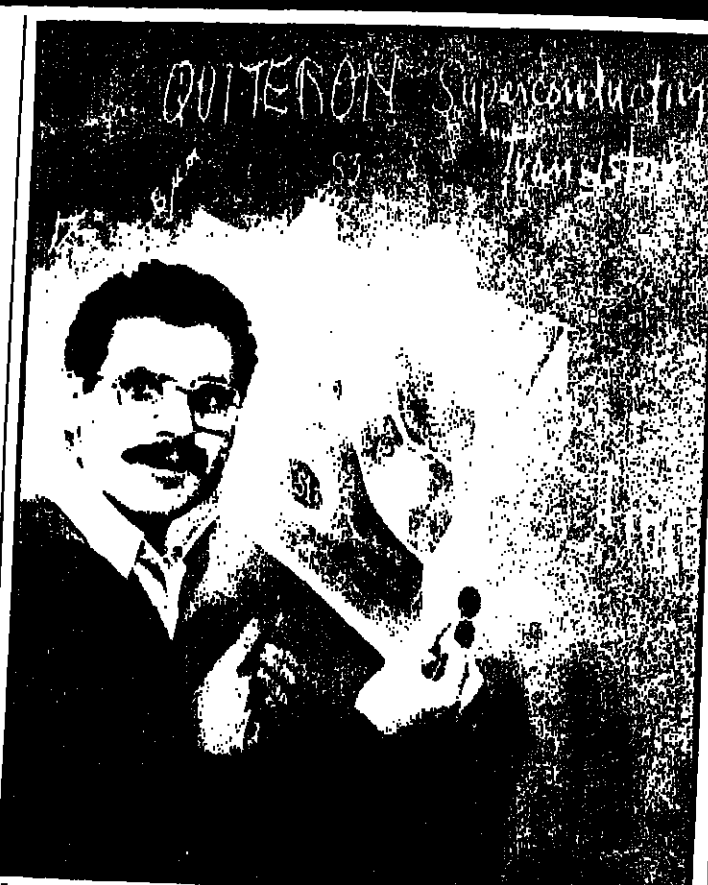
Another gripe concerns the insufficiency of the machine's memory. There are rumours that IBM is planning to expand the maximum memory for Model 5 to eight Mbytes, which would overcome many of the present criticisms.

On the service side it emerged that hardware maintenance, education and training and documentation are all rated as "good" by the largest slice of users, and as satisfactory by many more. However systems engineering support is rated from "satisfactory" to "poor".

It seems the problem is that there are not enough systems engineers fully conversant with System 38's unique systems architecture.

On the whole, it appears that many users are satisfied with IBM as a supplier and most of the criticism reflects administrative problems.

And almost half the respondents in the survey have "more or less firm plans to upgrade their CPU to a larger model within the next 12 months, or less frequently supplement it with a second machine".



Inventor of the Quiteron, Sadeq M. Faris, holds a wafer containing experimental samples.

## Superconducting device from IBM

by Howard Karten and Kevan Pearson

SCIENTISTS at IBM's Thomas Watson Research Laboratories in New York have discovered a new superconducting device with transistor type properties.

The device, which IBM has patented, is called a Quiteron, after the superconducting phenomenon known as the quasiparticle injection tunnelling effect. It has the same performance characteristics of the transistor - that is it can amplify, invert and switch incoming signals rapidly. But it generates far less heat and so has the potential for far higher levels of circuit integration.

But IBM is keen to emphasise that the Quiteron is still at the research stage and no complete circuits have been built.

From the technical details available it seems that the Quiteron complements the Josephson Junction, another superconducting device. But Josephson technology relates more to diode effects - that is, Josephson junctions act purely

as a switch and cannot amplify or invert.

The potential problem with both types of device is the extremely low operating temperature needed to produce "superconductivity".

This phenomenon will not happen until either device is cooled to minus 273 degrees Centigrade, which could severely limit applications in general purpose computers.

But one area where they may have an application is in the next generation of supercomputers being designed by Cray Research, Control Data and possibly by IBM.

Present generation supercomputers like Cray's S and CDC's Cyber 205 use fresh cooling, employing a liquefied mix of inert gases. Neither goes down to the temperature of liquid helium, which is needed to produce superconductivity. But the potential is there as some experts think that the supercomputer market could grow tenfold before the end of the decade.

## Chip start-up costs tripled since 1975

THE cost of getting into high technology semiconductor manufacturing has rocketed over the past eight years, according to the Semiconductor Industry Association. The cost of setting up a 1.5-micron four-inch wafer processing line (for 7,500 wafer starts a year) has jumped from 1975's \$10 million to \$30 million.

For more advanced one- or two-micron processing this cost will exceed \$60 million by 1985, the SIA reckons.

Despite this, new IC manufacturing ventures continue to spring up, undaunted by the worldwide recession. The SIA puts this down to the greater availability of venture capital, particularly in California. Government money helps too. The SIA notes that UK government-funded Immos has received the biggest capital infusion of any start-up in the semiconductor industry.

## On the run

COMPUTASTARS team for July '83, the charity run for John U. Groats to Land's End, needs an additional two UK runners to bring it up to strength following withdrawals due to illness and injury. Athletes interested in joining this international team should contact team manager Gordon Cairns at the address given on the Computastars entry form, page 2.

## Vendor of year

ICL has named Mullard as its component supplier for 1982. Mullard sells ECL and TTL logic and bipolar memory chips to ICL, and received the "vendor of the year" award through its ability to meet and maintain ICL's cost and quality IC requirements.

## Micro therapy

PATIENTS in occupational therapy departments of hospitals and day centres are to have microcomputers to play with. The idea was announced by Minister for the Disabled Hugh Rossi, who said it was an experiment to assess the therapeutic value of micro and to help long-stay patients gain new skills. The hardware is the BBC machine.

## Controller chip

MOSTEK's local area network controller chip, the MK68590, will soon be on the shelves at distributor Pronto Electronic Systems in Ilford. The chip, part of Mostek's portfolio of peripheral chips for the Motorola 68000 processor, is second source, is designed to interface any 16-bit microprocessor to Ethernet. The single VLSI device replaces about 160 medium scale chips and provides all protocol handling needed for an Ethernet network.

## Sinclair divides

SINCLAIR Research has reorganised. It has split into two operational divisions - current and advance products - and brought two more directors on to the board. Clive Sinclair still holds the reins, and will personally supervise the advance products division. The other division, headed by Nigel Searle, will look after production, marketing and development of the current ZX81 and Spectrum computer products, with peripherals and software for them.

## Sirius catalogue

ACT has brought out a hardware and software Sirius-I catalogue. It is the first full-scale listing issued by the Birmingham micro software house and distributor. It gives details of standard and Winchester Siruses, plug-in memory boards, printers, operating systems, languages and packages. Some 300 products are described. A second edition is due to appear in March, with further editions quarterly.

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## INTER-OFFICE MEMORANDUM.

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*Clipped this from Office Equipment Index. I think we need to talk to Data General.*  
*Can you set up a meeting*  
*Gerry*

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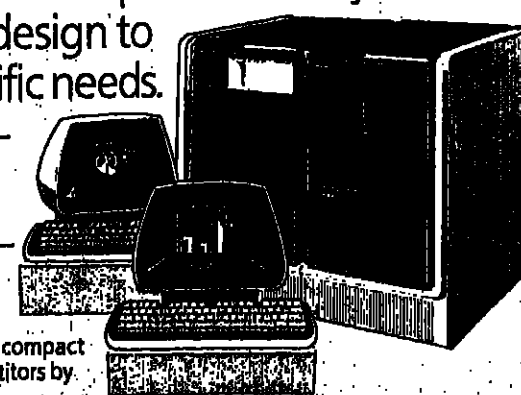
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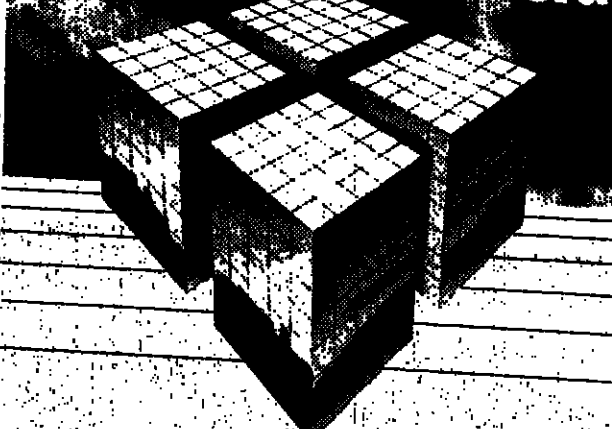
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## Theatres to revive ICL 1500 range

by John Kavanagh  
THE theatre world is to give a new lease of life to ICL's ancient 1500 range of small computers, now being phased out in favour of the DRS 20. A UK software house specialising in theatre booking systems and communications is aiming to sell theatre packages at a rate of one a month following a commitment from ICL to supply up to fifty 1500s.

The software company, Synchro Systems, has signed a contract under ICL's Tradepoint scheme for systems houses. It will sell its Boris theatre system on the 1500, eventually converting to the DRS 20.

The company has also developed a booking system for sports centres for the DRS 20. A version for private sports clubs is being produced for ICL's personal computer.

Synchro and ICL exhibited together at the Entertainment Conference last week. "We had strong interest from US visitors and I am going over next week to follow up the leads," said Synchro chairman Paul Warop. "There are over 400 theatres in the UK and there is potential for sales throughout the English-speaking world."



# Bug in system at Logica's launch

by George Black  
LOGICA's support service was slammed by a major user last week. "We have a bug with Xenix which could cripple our production any day," Alex Riley of Plessey Office Systems complained at a commercial seminar.  
"We have rung up and rung up and had no help at all. And we know of others in the same position. We just hope we're going to get better service with Unity. Xenix is a wonderful product but I can't say anything good about your support."  
Logica's software products group sales manager Maurice Rusoff assured him the problem would be looked into.  
The exchange happened at Logica's launch of its Unity version of the Unix operating system for use on Digital Equipment's Vax mini series.  
Rusoff said there had been little criticism of Microsoft's Xenix which Logica is supporting. But an ITT delegate retorted: "Just because you don't get to hear of a bug doesn't mean it doesn't exist."  
Technologists from the big corporations and academic institutes turned out in force for three seminars on Unity. Some 30 to 40 organisations were represented at the British launch of the Unix-lookalike developed by Human Computing Resources of Toronto. Logica, the £33 million turnover British software house, is to distribute and support the product, which operates concurrently with DEC's own VMS on the Vax.  
"It offers co-existence between the two operating systems on the Vax," said Adrian King, of the software products group.  
But he struggled to convince an expert audience that Unity would be able to give a complete Unix emulation.  
Unity is claimed to be a complete version of Unix System III as designed by Bells Labs in 1980 - with no corners cut.  
"All previous versions have taken over the whole computer. We're now talking about a solution which offers the user equal use of the two systems," said King.  
Several other 32-bit minis can now use Unix-type operating systems, including those of Perkin-Elmer and Hewlett-Packard. But most use a Unix system as an alternative instead of a complement. The implementation on the Vax range is particularly significant because there are now between 600 and 700 Vaxes installed in this country.  
King said that at the computer exhibition in San Diego, California, there had been a staggering range of hardware now supporting Unix. "And there are more rumours about IBM and Unix than I care to count at the moment."



KING... "More rumours about IBM and Unix than I care to count."

## dBase II maker for UK

by George Black  
ASHTON-TATE, the \$40 million Los Angeles company which developed the successful dBase micro package, has set up a UK branch. Its head, David Imberg, aims to boost sales of the relational database management system through British distributors and OEMs, as well as to launch its software.  
About 2,500 systems have been installed in this country so far, mainly by Encore, the largest UK distributor at present. But Imberg thinks there is a market for "tens of thousands more". He is planning to bring out an applications register soon and to recruit a number of technical support staff. This party software will also be encouraged.  
New products under development include Financial Planner, which Imberg describes as a cross between a spreadsheet and a micro-modeller, and Strategist, aimed at handling feasibility studies for product managers and venture capitalists.



IMBERG... "Thousands more"

## Superfile goes US

SOUTHDATA, London owned the Superfile database manager, is about to sign an American distributor. Established American databases may incorporate major features of the freeform British DBMS when the deal is concluded, says Southdata's Peter Laurie.  
He has just returned from the CFM83 exhibition in San Francisco, attended by 60,000 over three days. Talks have also been held with Digital Research, which is believed to be interested in a DBMS to bolt on to C-Basic. Southdata plans to look for French and German agents later this year. And a 'C' version of Superfile is expected to be launched in April.  
In preparation is an interface with the Analog Concept Learning System, developed by Professor Donald Michie at Edinburgh University. The expert system, written in Pascal, is claimed to make the database easily reducible to a set of rules.

## Database snag solved

AMERICAN software house Applied Data Research claims to have cracked a problem that IBM couldn't in the updated version of its relational Datasql system.  
Datasql, part of the ADR Datascom/DB database system, now lets users change fields in selected records on the file. UK director Nick Pollard claims Datascom is now a realistic alternative to IBM's SQL/DS.  
"Whereas SQL requires an enormous amount of storage - as much as two Mbytes - the new release of Datascom can be demonstrated to take as little as 48K on an IBM 370," he said.  
Datascom has been the focal point of ADR's range since it moved into the distributed database arena at the end of 1981. This is the third release of Datasql, a relational query system that operates in both online and batch modes.

## £96,000 grant for Geest

GEEST Computer Services is using a £96,000 grant under the NCC Software Products Scheme, to launch a new commercial property management system. The plan involves the rewriting of Geest's estate agents' package Prose and accounting package Gems, which handles mainly domestic property, for use in commercial premises.  
First two installations were completed late last year and now managing director Philip Wainwright is running seminars to promote the product. He aims to convince large public sector property owners of the system's benefits.  
Geest is a Texas Instruments OEM and has recently become an OEM for Tandem. The new package will run initially on TI minis.

## Office chief

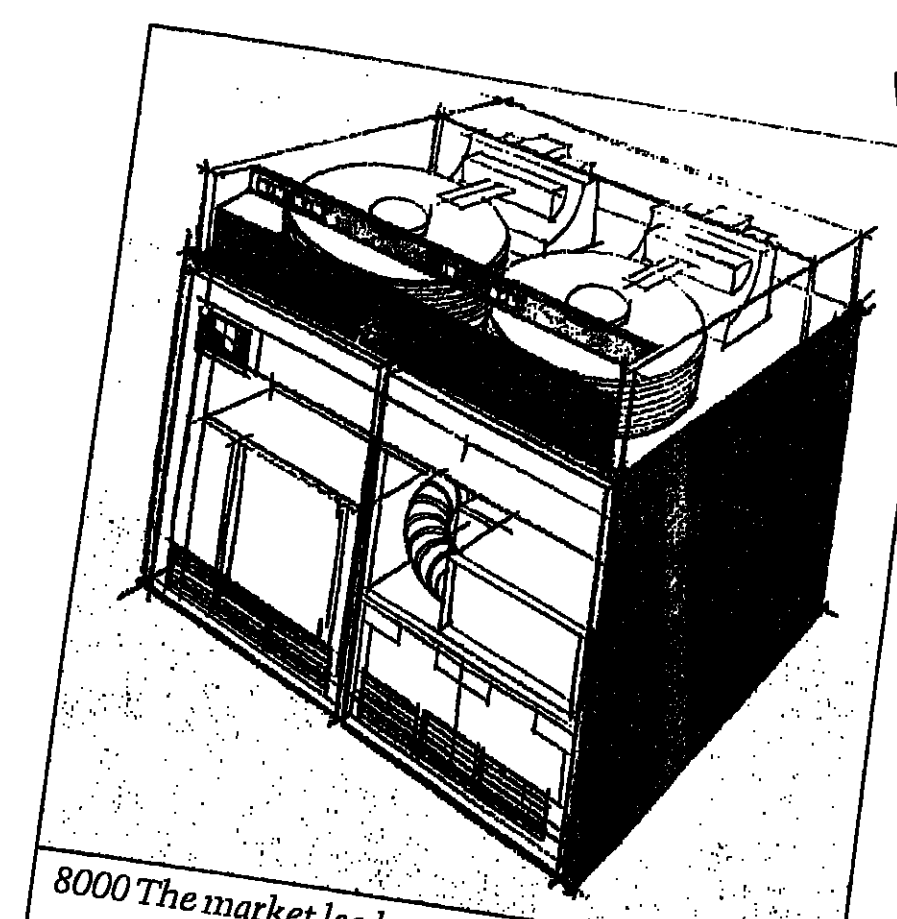
MANAGEMENT consultancy PA International has appointed a former Department of Industry man to head its new office automation division. He is Colin Leeson, who worked on the DoI pilot programmes in office automation. PA, with over 2,000 staff in 22 countries, provides business and technology advice in industry, commerce and government.

## Unix release

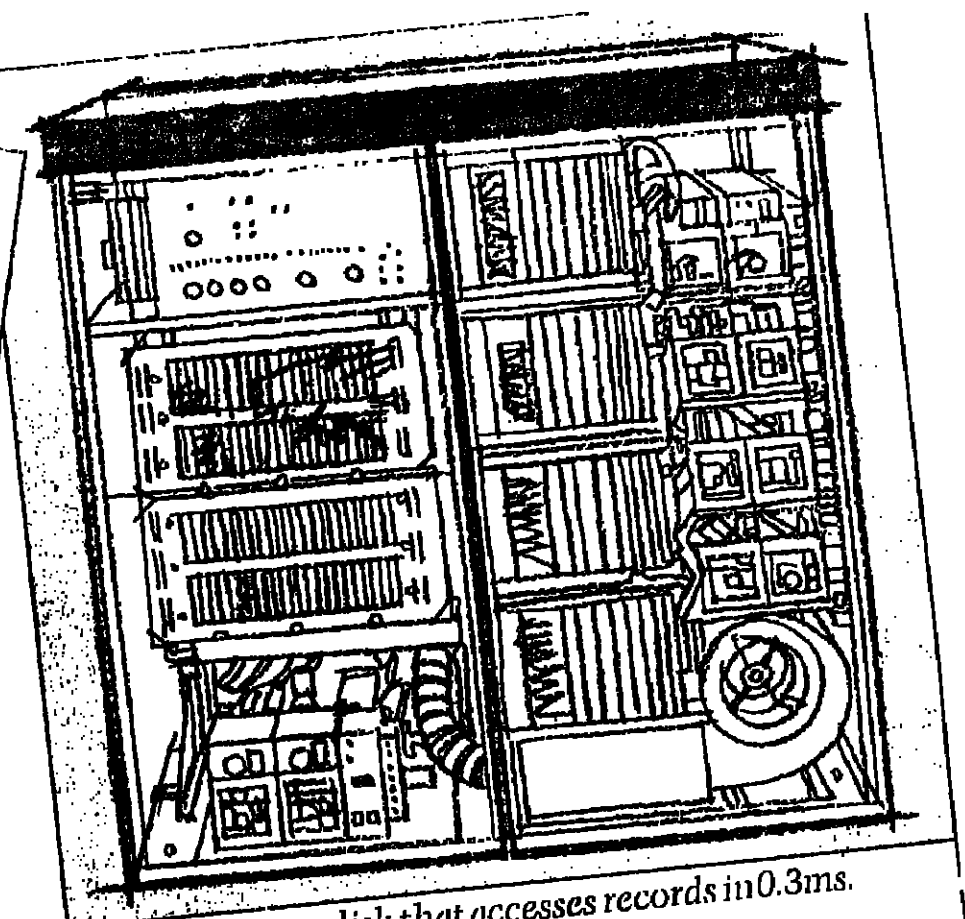
LATEST version of Bell Labs' operating system Unix, System 5.0, was released at the Unicom exhibition in San Diego at the end of last month. Bell has improved the performance of its own machine, the 3B20, running under Unix, as well as DEC's Vax. At present there are no plans to sell the 3B20 outside the Bell organisation. System 5 will not be available in a Bell version for models smaller than the PDP-11/70, nor on the Intel 8086 or Motorola 68000 chips. It will be supported by Bell Labs directly, but only for source code licensees.

## Retailers' system

AN integrated business system costing about £5,000 for the small independent retailer is to be announced in the spring by Andover-based Tabs. Founder of the micro firm, Terry Poole, said the product, initially run on Teletext but later to include the Unix-based Fortune, was aimed at the still untapped market of corner shops and restaurants. Merchant bank Hambros, which put £150,000 into Tabs, is expected to increase that figure this year, when turnover could rise substantially to £2 million. The 50-strong company has a chain of 500 UK dealers.

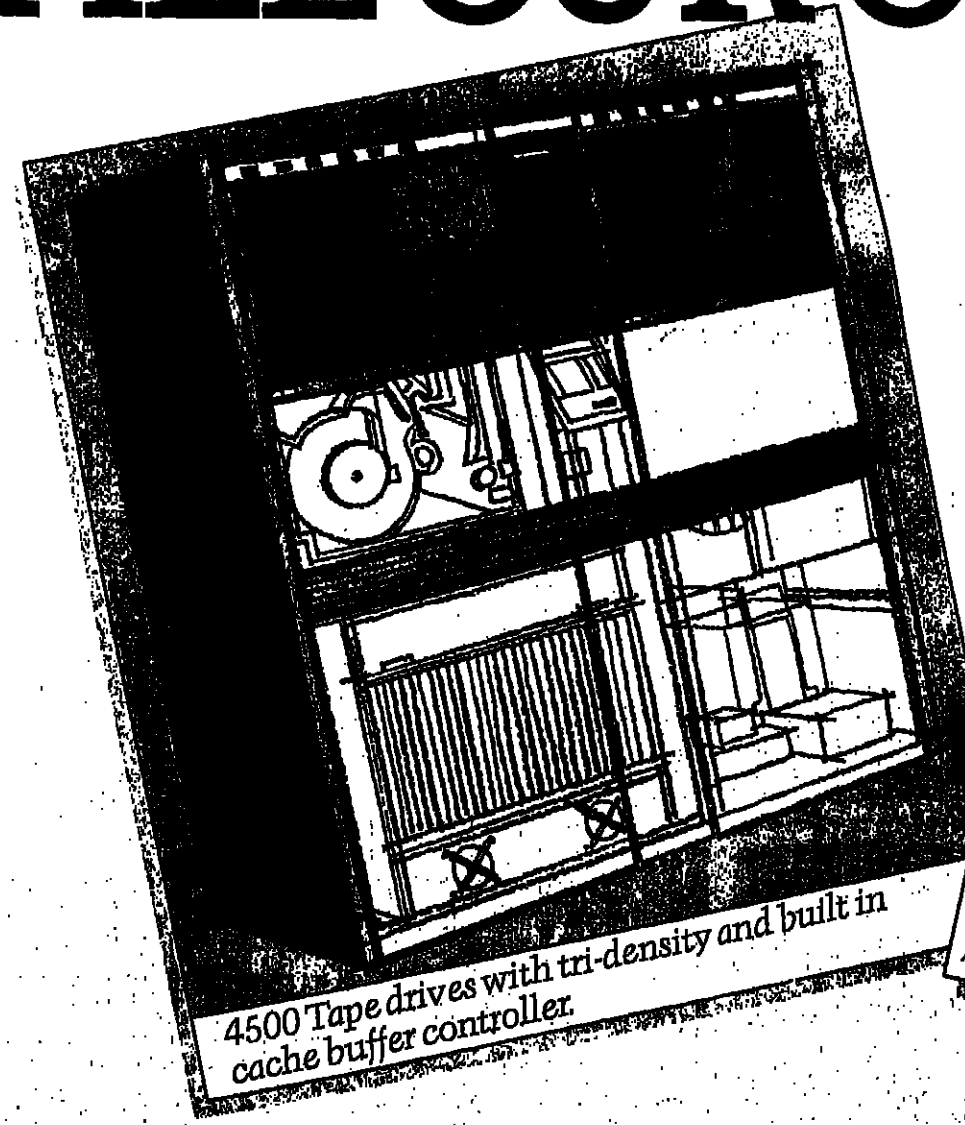


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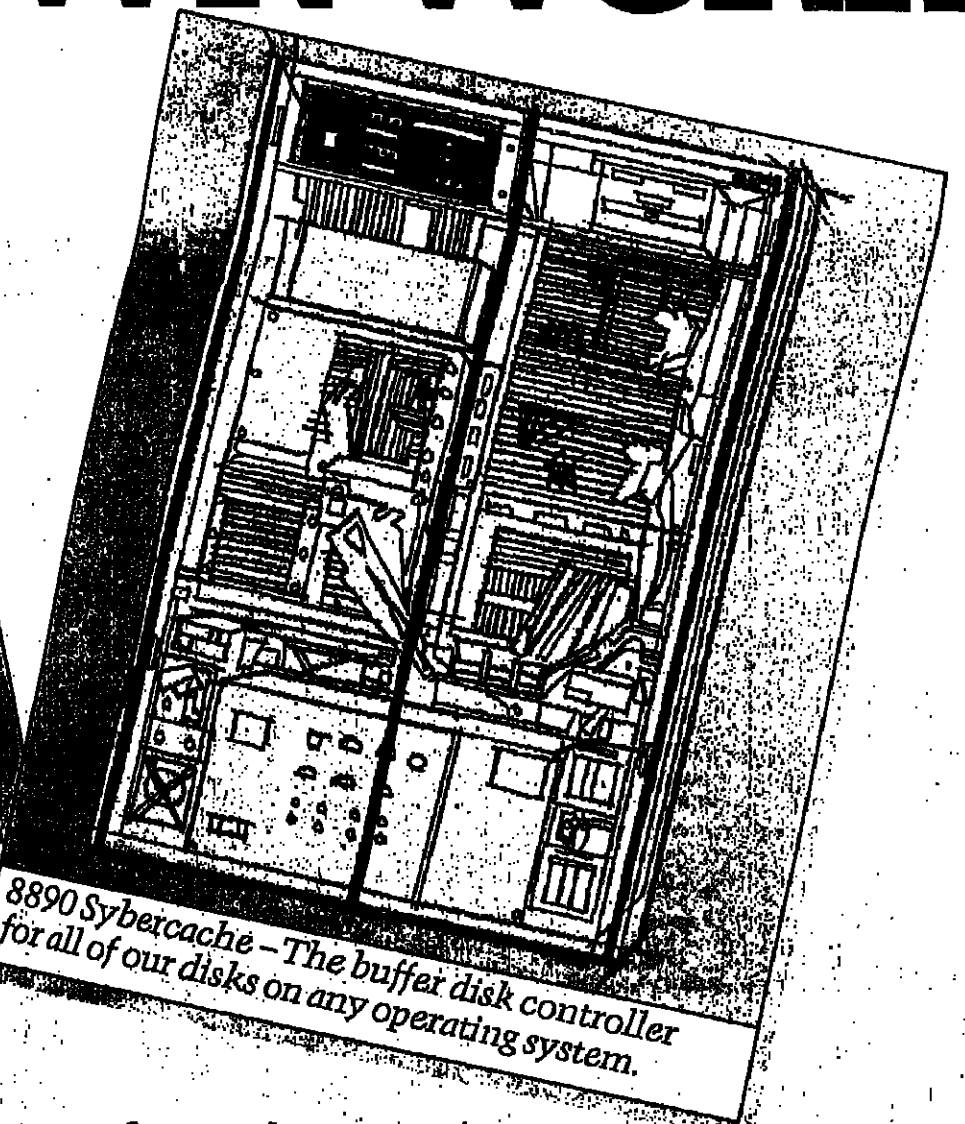


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# Big game hunting in right places pays off

THE fastest way to come down a mountain is to ski from the top. The fastest way to snowy mountain tops is by helicopter - that's how Ted Priem, soon to be president of US software company Comserve, does it.

It helps, he says, if you keep your ankles in trim during the summer by skiing behind a 400 horsepower motorboat.

And it helps even more if you live on the shores of Lake Minnetonka and can do your skiing at 6.30am, prior to a 7.30am start at the company.

To add to the picture of high-powered American success, Priem also likes big game hunting.

His staff point out that there is often a dual interest in Priem's pursuit of the elk and the moose. Faced with a choice of three places to go on safari last year, Priem chose South Africa. He came back with a key agent in the bag, now doing £200,000 per annum worth of business.

"It pays", Priem says, "to go big game hunting in the right places".

There is, however, a lighter side to Priem though it's occasionally hard to make him reveal it. He is a

founder of Comserve, and he remembers when all that stood between the company and the balliffs was his next unsigned order.

Not a few UK software companies will sympathise with Priem when he says there was no period as thrilling for him as when he went on the road knowing that no contracts coming back in the bag meant no pay. If he now epitomises the American dream and the rewards of success, he has not forgotten the cliffhangers.

I remember once being in a far from home base and getting a call from the office manager to say there was no money to pay the payroll. With nothing but a contract we persuaded the bank to accept 80% of our accounts receivable for the contract. Their previous limit was 50%.

"The worst years for Comserve were the worst years for most people. 1969 to 1972 was the toughest time. A lot of good companies went to the wall that year", Priem says. Prior to joining Comserve in 1969, Priem had been with NCR. "I got out", he says, "because in those days NCR was run by a lot of people with cash register mentalities. Those of us who wanted to

be real DP professionals felt we had to leave."

When he joined Comserve it was still a service bureau running a few general packages, and doing one-off jobs for customers. One of the reasons for their success, Priem says, is that they got into general packaged software early. There were not many people doing real general purpose packages back in the early seventies. Comserve specialised in bill of material and production and inventory management systems.

A key element of this was the inventory control concept pioneered by Priem as MRP, or Minimum Requirement Planning.

Comserve developed its software around this theory of statistical estimation of minimum stock levels. The company now has revenues of \$25 million. By next year Priem expects the figure to increase by 50%.

Priem says higher revenues will enable him to accelerate growth by acquiring other companies in "complementary fields". He has UK companies very much in mind noting that it took years to hit \$3 million sales in the US, while it has taken a year in the UK.

PRIEM... Came back from safari with a key agent in the bag.



PLATFORM

Is Lisa too pricey?

IN counterpoint to the noisy proceedings at the Lisa was the silence that the announcement of the sterling equivalent of the plus travelling expenses.

With the pound at a gnomes tremulousness, no one's money for was essentially a personal war. Has Apple blown Lisa's then?

Some of the more quiet thought not. "No one ever what the market will be. Keith Hall" remarked one retailer who had had a rugged-playing sales director incarnation as Commodore's marketing manager.

The existence of a market sort of price level is certainly doubt. Xerox has done that by selling every 800w ton - the only piece of the remotely comparable to last over £11,000 each.

Rumours that of IBM lady, has it that Lisa's target price was \$5,500 before the gnomes' weighty sterling tumbled. There are to have been a genuine demand on price within Sources close to the company's perthino headquarters and distinct schools of thought favouring a "low" price of \$8,000 mark with a maximising the company's tag in being first. A second is said to have canvassed a price tag on the basis of would generate the revenue, given the supply problems during the year.

In the event Apple's executive, Mike Markkula seemed to have split the difference. The unknown factor in the price equation is Macintosh's little brother.

Like Lisa, Macintosh is on the Motorola 68000 microprocessor. Like Lisa, should run much the same ware. But will it? Like Lisa's software just grew out of and now occupies more than a gigabyte of memory in all. The ability of marketing a large version of Lisa went out the window more than a year hence the presence of the hard disk. Exactly the same problem now arises with Lisa's little brother.

One theory now current is that Apple watchers propose that as an artificially high price Lisa, simply in order to market separation from the tosh.

All this speculation - but the assumption is that the overpriced. But is it? The may, it is hard to put a price on a megabyte of RAM, megabytes of Winchester disk and half a dozen or so applications packages and still find a much change from £2,000 what price user (friendliness) Lisa may not be within everyone's pocket, but it looks like good value to many.

## ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS  
Thursday, February 10, 1983

### Make good use of these skills

PEOPLE heap praise on the UK software industry so often that it is becoming embarrassing. In the last week alone Hewlett Packard's UK managing director has praised the graduates the company is recruiting; the top man at Scicon has reminded MPs that the UK software industry is recognised as "exceedingly good" around the world; while Digital Equipment has shown its high regard by setting up its first research centre outside the US, with the prospect of 300 new jobs.

The trouble is that the government seems content to enjoy the cosy glow of all these compliments but does little else to respond to them.

For the plaudits are offset by damning indictments of government spending cuts. David Baldwin, at Hewlett Packard, pointed out the extent to which the UK trails the competition: 87,000 people graduated as engineers in Japan last year and 63,000 in the US - compared with 13,000 in the UK. Yet Baldwin said that by the mid-Eighties half the company's recruits would be graduates.

Even Industry Minister Norman Lamont, commenting on DEC's plans, conceded that there would be a shortage of the right skills.

And Warren Werblow at Scicon spoke of French government plans to spend almost £14,000 million - more than a fifth of the total national budget - on a five-year plan for the electronics industry. This is at a time when the UK government is mulling over whether to spend £260 million on supporting research in vital areas of the information technology industry, as identified by its own Department of Industry's Alvey Committee.

The government is to be congratulated on getting firms like DEC and Hewlett Packard to invest in the UK to such an extent - even if the main attraction is the raw materials, the software skills we keep hearing about.

But as Werblow says, it is now time for the government to look more closely at the home-grown industry and put proper support into university courses, product development and export effort. It is hoped that the response to the Alvey report from the influential National Economic Development Office will act as a spur (see page 3).

The UK has enjoyed the praise for a long time. It is now time to put the highly regarded skills to good use.

### A clear example

CLARITY of expression is not a characteristic for which accountants are noted. And the law, which so many frequently confuse with the idea of justice, is of little help when it comes to forcing companies and their auditors to present annual accounts which make some kind of sense to the intelligent layman.

The worst offenders in this respect are generally the multinationals, and it is a welcome change to find one which treats both the employees involved in its UK operations, and the general public, with the respect they deserve by producing a decent set of UK subsidiary accounts.

The company concerned is Hewlett Packard, and the accounts offered last week were every bit as clear, and as well illustrated as those of the parent company in the US.

So, to Hewlett Packard, among the multinationals operating in the UK, full marks for effort.

As to clarity, the presentation of the accounts was as good if not better than many produced by similar sized companies in the UK.

Having said that, it is worth noting that the accounts do not show how much by way of grants and government inducements H-P received from the UK taxpayer.

And while the accounts show that H-P tipped its exports from £20 million to £27 million, they do not show which way the balance lay in terms of imports by the company.

Having had our little carp, however, it remains to invite the otherwise impeccably correct IBM to follow suit and produce some decent UK accounts.

A well illustrated, detailed set of accounts, such as H-P has produced, would cost a fraction of the money IBM spends on public relations and go a long way to prove real interest in genuinely informing the UK public about its operations.

**1984 and all that...**  
THIS week's example of the strange things people say about computers was sent in by D. W. Parr of Coventry, who wins £5. Traditional software programming is likely to be replaced by poppy discs, which can be written by people anywhere.  
Sunday Times Business News

## LETTERS

If only the system could spell...

IT is a pity that Apple stands to lose all if its Lisa fails (CW, January 27) since I for one will not have much faith in a company which releases to the Press a picture of its new "desktop" with a reflected spelling error for all readers to see.

I will be afraid that the "success" may be "stationary" as well and will not move the pointer.

C. H. BEAZER  
Royal Life Insurance  
Liverpool

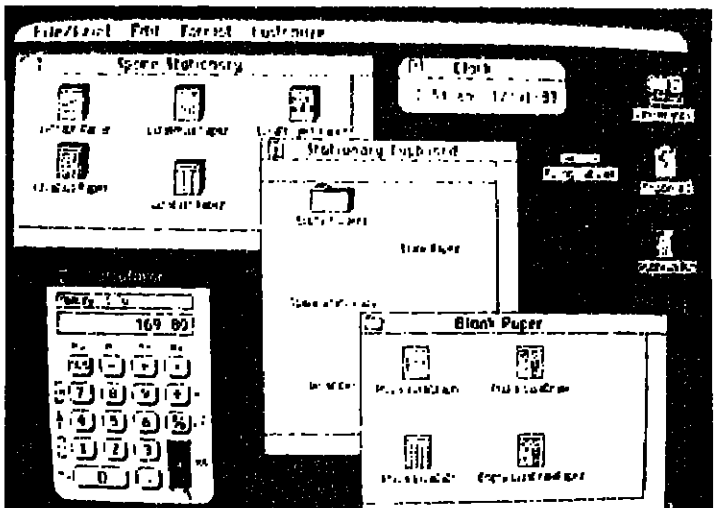
### Gary - a masterly footballer

GARY the Sharp Shooter (Which Computer? Show feature, CW, January 13) would be picking one or two balls out of the net as well! He is not reading for a computer science degree but has applied to UMIST for a part-time MSc in civil and structural engineering.

Not surprising really that he should want to study here since, as is well known, UMIST is to education what Manchester United is to football!

TIM YATES  
Director of Communications  
UMIST

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.



From CW of January 27. See "If only system could spell".

## Repunits

THE "Puzzle" (CW, January 20, 1983) provides a most interesting excursion into the theory of Repunits. Given any prime, p, there exists a "magic integer", m<sub>p</sub>, such that the product p.m<sub>p</sub> yields a sequence of Xs for an arbitrary digit X.

This requires that the Repunit R<sub>p</sub> = 111...1 = (10<sup>n</sup> - 1) / 9 be divisible by p; the quotient being the required m<sub>p</sub>.

The table below exhibits those magic numbers < 10<sup>3</sup> for p < 100. It is clear from this table - and its omissions - that problems related to the factorisation of repunits provide ideal bench marks for general number length integer arithmetic routines eg, Lisp on the DEC 20/60.

M. R. MUDGE  
University of Aston

p	n	m <sub>p</sub>	p	n	m <sub>p</sub>
3	3	37	43	21	2583979328165374677
7	6	15873	59	58	56 digits
11	2	1	61	60	58 digits
13	6	8547	67	33	31 digits
17	16	65359477124183	71	35	33 digits
19	18	5847953216374269	73	8	152207
23	22	48309178743961352657	79	13	14064697609
29	28	26 digits	83	41	39 digits
31	15	3584229390681	89	44	42 digits
37	3	3	97	96	94 digits
41	5	271			

Table exhibits magic numbers. See "Repunits".

## DOWNTIME

### The unfriendly system

THERE is hardly a computer system in the world that has not been described as user friendly by its makers. But the system in use by a Portsmouth company, Western Yachts, can only be described as user hostile, as correspondent Brian Dagnall informs me.

He wrote to the company asking for his name to be removed from its mailing list, and completed a pre-paid postcard to the effect. The company wrote back saying

that this could not be done because Dagnall was listed under a computer code number essential for all amendments to records.

His name could not therefore be erased until he returned intact the next piece of mail received from them, presumably the letter containing this same request. This had to be done because the mysterious code number appears on the envelope and nowhere else, it seems. A nappy to whoever designed this system!



Say what you mean!

THE habit of referring to Europe and meaning Continental Europe is the kind of imprecision that can cause broken friendships among sensitive nationalists. But into writing, however, it could end up costing money.

It is worth avoiding this kind of looseness when it comes to drafting a contract with a trading partner, on pain of signing away more than you intend.

In case you are wondering what brought on this mini-sermon, it comes to you as a result of the chieftain Vector International's managing director Gabor Weiner employed when he noticed that a recently signed contract gave his company exclusive European marketing rights to Micro Focus CIS Cobol - although presumably the latter intended to hold on to its home territory in the UK.

Weiner says his company will be following what he regards as the spirit of the contract, rather than its letter.

### Why IBM stays away

COBOL is about as dominant among computer languages as IBM is in the whole industry. So it came as a surprise to us here that IBM is not represented on one of the most important formative groups in Cobol development, the Screen Management Task Group (SMTG).

The answer lies with IBM's belief in healthy internal debate. There were three different philosophies on the use of video screens in Cobol competing within the company. IBM could only send one

representative to the group and could not decide which of its three philosophies should be represented.

Eventually IBM found a disinterested party at its French subsidiary - a man outside the circle of the three philosophies. But the company was unprepared to fork out for the frequent air fares across the Atlantic to the SMTG meetings.

So SMTG inches on with the biggest supporter of Cobol looming on the edge.

### Day of the Dolphin

ONLY the dolphin is wiser than sapiens. Could this be why IBM chose recently to insert a quadruple page pull-out photograph of a dolphin into a Sunday colour supplement? Was the idea to liken its system to the dolphin's immense brain?

It seems not. IBM instead draws attention to the dolphin's perfect hydro-dynamics which enable it to swim up to 25 miles per hour from a floating start in less than ten seconds, and to perform acrobatic turns with a minimum expense of energy.

Such perfection cost Mother Nature 30 million years of evolution, points out IBM. With CADAM or CATIA modelling programs, such design can be achieved in a mere geological microsecond, the company argues.

One thing Mother Nature never thought about, IBM says - the price. Good news indeed that IBM has gone one better than Mother Nature by attaching a price tag to its product.

Conclusion after reading the advertisement: Dolphin definitely exceeds human sagacity.

### Inmos suffers a blockage...

HEARD the joke about Inmos? No, not that one - there's nothing funny about bottomless pits for taxpayers' money. This is a technical joke about Inmos.

Of all the reasons put up by the chip maker to excuse its continuing heavy losses, the one concerning problems with its water supply is a real cracker.

"Colloids in the water blocking the microscopes of the reverse osmosis membranes were not foreseen in the original design and organic impurities were not filtered out."

Chad

COLOUR GRAPHICS  
"I CALL IT 'PIXELLATION'!"  
YOU HAVE IT ALREADY!  
OH... POINTILLISME!

### An initial misunderstanding

THE duplication of jargon, acronym, abbreviation and cant within the computer industry can lead to embarrassing misunderstandings. Only the other day, I spent ten minutes talking to a contact about what I understood to be plug compatible mainframes, referred to affectionately as PCs.

Normally my contact would

have known what I was talking about. But we have been blitzed with news of a different kind of PC lately - or two different kinds if you go outside the computer industry. But my man was referring to the Personal Computer.

Incidentally IBM deems PC to mean just its own Personal Computer; to hell with everyone else's.

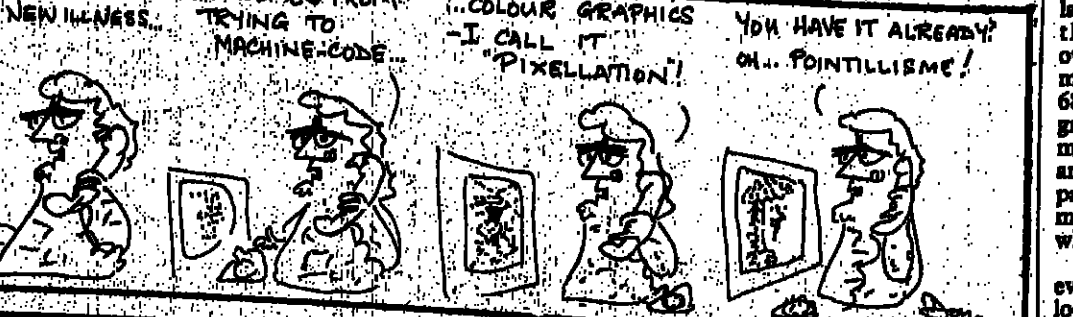
### 10 YEARS AGO

FROM COMPUTER WEEKLY OF FEBRUARY 5, 1973: Honeywell introduced its Multics terminal access package to the UK... Following ICL Datakill, Altergo decided not to renew its membership of the Software Houses Association... NCR opened its fifth UK data centre, in Manchester... IBM doubled the maximum memory sizes of the 145, 158 and 168 systems.

Liveware File

by Don

IT COMES FROM TRYING TO MACHINE-CODE...  
"BMA? I THINK IVE FOUND A NEW MESS..."  
"COLOUR GRAPHICS... I CALL IT 'PIXELLATION'!"  
YOU HAVE IT ALREADY!  
OH... POINTILLISME!



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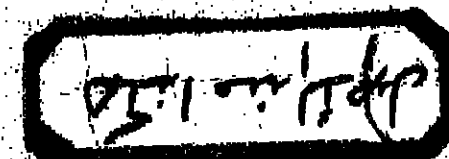
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## COMPUTER WEEKLY February 10, 1983 2



## Microimage terminal launch by Kodak

THE UK launch of the latest in its range of intelligent microimage terminals, the IMT-50, is announced by Kodak.

This terminal provides automated retrieval under microprocessor control for use in installations where computer assisted retrieval is required but the additional sophistication of interfaced online access to a mainframe computer is not essential. The resulting installation provides a lower cost alternative to the full online system which will continue to be available in the form of the Kodak IMT-150 microimage terminal.

The new terminal offers 17 different search programs and is capable of two-level searches - "block and batch" or "batch and item." As a result it can accommodate a wide range of filing routines. Eight high-quality lenses are available, ranging in magnification from 16X to 47X.

To use the microimage terminal,

the operator first interrogates the electronic index which can be maintained by either a minicomputer or a mainframe. The electronic index gives details of the microfilm magazine and the address of the required image. The operator simply inserts the appropriate magazine into the terminal, keys in the address and presses the "search" button. The Kodak IMT-50 terminal automatically locates the image and displays it on the screen. A paper copy of the image can be obtained.

In addition to controlling automated document searching, the terminal's microprocessor monitors a number of machine functions and provides the operator with feedback via an LED display on the keyboard.

Kodak (CW), PO Box 66, Kodak House, Station Road, Hemel Hempstead, Herts HP1 1JU. Tel: Hemel Hempstead 61122.



The Kodak IMT-50 microimage terminal.

## Alternative to keyboard data entry

WEGO Computers of Caterham has launched a card reader. The 2000 series are optical machines, which provide the computer system with an alternative to the keyboard entry of data. Cards are marked with a pencil, pen or punch, then inserted into the machine hopper for entry to the computer. The reader may also read pre-printed data.

Three versions of the machine are available: the 2000/RS232 for use with any system with an RS232 input port, the 2000/Apple which has been designed for use with the Apple II, supplied with an interface that fits inside the Apple, and the 2000/Pet supplied with a connector to the user port of the Pet.

The machine has a hopper capacity of about 120 cards, with a maximum speed of 56 cards per minute. A continuous on demand feature allows the card reader to feed automatically once the data from the previous card has been transmitted on to the computer.

The price is £1,295 + VAT. Wego Computers, (CW), 22a High Street, Caterham, Surrey. Tel: (0883) 49235.

## Full IBM compatibility offered

THE General Systems Division, Geac UK announces complete IBM 3270 compatibility for a range of Informer terminals. These terminals provide the facilities of standard visual display units but are packaged with less space in mind.

A typical Informer terminal weighs under 20 lbs, can take up little as 13in x 13in of desk top and the 9in diagonal screen can display 80x24 columns of text selectable to 32x16.

The IBM compatible range, designated the Informer 370 line, system, comprises four models: terminal, a cluster console, offering a complete alternative to the IBM 3270 remote information display system at only 5% of the IBM size. The 370 system can be installed at a remote site or locally using modem eliminators.

The terminals are available in configurations suitable for creative information retrieval, data preparation and general system work.

Informer also offers a standard 3275-2 emulator. Geac Computers (CW), Tel: 01-828 5235.

# SOFTWARE MONTH

'Modern computer buyers are beginning to demand a system that can be bought, plugged-in and played as simply as a hi-fi'

## Users are plugging in to hi-fi phenomenon

FOR the past 20 years, two major characteristics have dominated the history of computing: falling costs and rising power. The effect has been an almost complete reversal of the attitudes held by the major suppliers towards the two products of hardware and software.

In the beginning, because of the all-consuming cost of the hardware itself, manufacturers concentrated more on producing the machine than on the wherewithal to use it. But now, more and more customers are able to use more and more power, and software has become an integral part of computer marketing.

The growing importance of software as a trend is visible throughout the major manufacturers. In the UK, ICL has made a complete reversal, from ignoring software suppliers to courting them. In smaller systems, Digital Equipment has released a range of personal computers built around the concept of software availability: half of them can access the enormous pool of CP/M software, while the other half can make use of existing PDP/11 software.

And IBM is no exception. Recent years have seen a spate of improved products, ranging from SSX/VSE and SQL/DS to vastly improved versions of CICS.

Some commentators suggest that IBM is beginning to set its sights to a new and wider market,

and that in doing so, it will wage war on the numerous third party software suppliers.

Liam McKenna, IBM UK software product manager, sees it differently. He points to the increasing difference in the power to price ratio within modern comput-

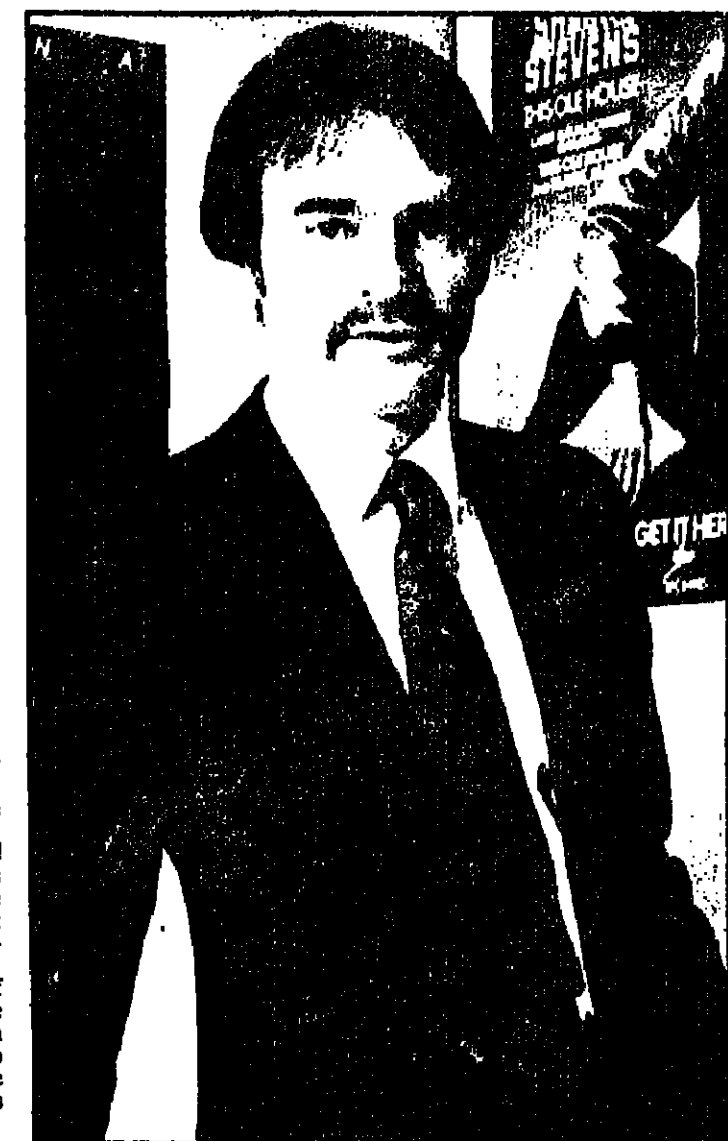
ing and suggests that IBM is not so much seeking a wider market as responding to the demands of a growing market.

"As computing power gets cheaper," he says "new and smaller companies are now buying what, a few years ago, we would have sold to a larger company. These new customers have different requirements from our earlier customers - they can't afford to fund the massive programming schedules demanded by the earlier mainframes."

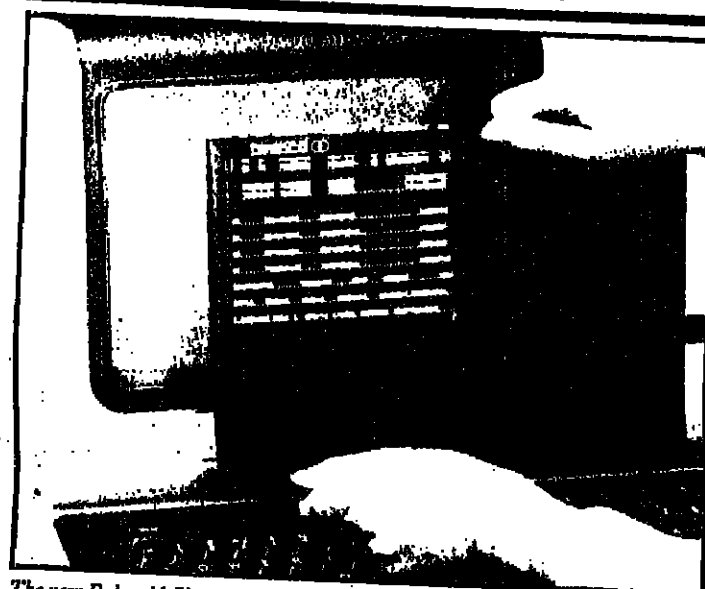
"In many cases today, it is the businessman who buys - and uses - the computer. Small Systems Executive (SSE) is IBM's provision of an easy software route for the new style of customer that is now looking for computer solutions to business problems."

It is, in fact, another example of what has been described as the "hi-fi phenomenon" - modern computer buyers are beginning to demand a system that can be bought, plugged-in, and played as simply as a hi-fi system.

Turn to page 24



WATSON... "IBM has at last seen the light"



The new Polaroid filter from Immac.

## Filter cuts VDU glare

GLARE on a VDU screen is one of the quickest causes of fatigue. This presents a major problem for users, so special glare filters were developed to reduce the glare and enhance the contrast. These are now available through Immac, under the name Glare Sentrys, for general use on a wide range of the most popular VDU screens.

The principle is that the circular polariser (manufactured by Polaroid) is made up of two layers. The top layer is a polarising filter and the second layer rotates the plane of the new polarised light by 45°.

When it is reflected and tries to re-

emerge, it is again rotated by 45° giving a total twist of 90°. The polarising filter will then absorb the glare. On the other hand, light from the display only passes through the filter once and emerges clearly with improved contrast.

The Glare Sentry filters mount easily on to VDU screens with adhesive strip. They are available for all popular makes of VDUs such as the DEC VT100 and cost £95.

Immac UK (CW), Astmoor Industrial Estate, Runcorn, Cheshire WA7 1QG. Tel: (09285) 67551/2/3.

## Jaguar adds Telepac node

THE Telepac X25 packet switching node is the latest product in the range from Jaguar Communications.

Designed and built in the UK, the Telepac enables users to build a medium-scale communications network fully compatible with CCITT X25 Level 3 standard. Jaguar says this compatibility benefits the user by enabling his existing equipment to accept calls from and make calls to PSS/PPSS.

The Telepac has eight synchronous ports any of which may be configured either for X25 use or for the link protocol of the Codex 6000 series of statistical multiplexors. The user is thus able to build a cost-effective network combining asynchronous terminals and computer ports.

Jaguar Communications (CW), Elton House, London Road, St Albans, Herts. AL1 1JL. Tel: (0727) 32398.

## System 34 screen prints

RENTAL Research has announced a screen printer for the IBM System 34 and 38, to complement its range of specialist devices for attachment to IBM systems.

The 2220 screen printer solves the long outstanding problem of obtaining rapid screen prints from the 5251 display station.

Use of the 2220 does not restrict the number of devices that may be placed on a line, it being possible to have seven 5251/9999s and seven 2220s on the same port of a System 34.

In addition to the forms tractor, the 2220 is supplied, as standard, with a friction feed which makes it an ideal device for point of sale applications producing A4 invoices, statements, etc.

Rental Research (CW), 2 London Wall Buildings, London WC2E 7RN. Tel: (01) 628 0341.

## COMPUTASTARS

### Chance to shine in the DP Olympics

by Andrew Thomas

ONLY three weeks to go before entries close for Computastars '83. This year's DP Olympics for men and women working with computers starts in Birmingham on April 30, and culminates in the UK final at the same venue in July.

Winners will be eligible to go on to the European final later in the year, where they will be up against the cream of the Dutch, Belgian, and German DP industries. Entries are open to men's and women's teams of between three and five members who are prepared to run, jump, throw and lift for the honour of their companies.

The cost of this honour is £37.50 per team for the main competition, with an additional £20 payable for teams reaching the European final.

Alongside the main competition runs the tug-of-war contest, Computastars 1 omitted to tell you last week the entry fee for this battle of superstrength, but I can now reveal that the cost is a paltry £10 per six-person team. Men's and women's teams are eligible.

Full details of the competition, and the list of rules, can be found in last week's Computer Weekly, or can be obtained from the organisers at the address on the entry coupon. Please direct all enquiries to the organisers and not CW.



Sponsored by Computer Weekly

## UK dates

Birmingham  
Saturday April 30  
Enfield Sunday June 5  
Enfield Sunday June 19  
Barnsley Saturday June 25  
Birmingham (UK final)  
Saturday July 23



Clive Bennett of Heywood & Partners winning his heat of the 100 metres at Barnsley last year.

## COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastars/Computatug 1983 and would like to enter

Main competition ..... Men's teams ..... Women's teams  
Small units ..... Men's teams ..... Women's teams  
Veterans ..... Men's teams ..... Women's teams  
Computatug ..... Men's teams ..... Women's teams

Names of team(s) .....

Company .....

Address .....

Name of contact .....

Telephone ..... Extension .....

Signature of DP manager or equivalent authority .....

Position held .....

We would like to compete in the following region:

NORTH BARNSELY  
LONDON (ENFIELD)  
MIDLANDS (BIRMINGHAM)  
SOUTH (ENFIELD)

please circle appropriate region

Enclosed is £..... to cover the entry fees for the team(s). Cheques should be made payable to Computastars Ltd.

In all matters relating to the rules or conditions of entry, the decision of the organisers is final. Please send entry form and fees to Computastars, 117b High Street, Croydon CR0 1QG. Telephone 01-688 6690

# The SERC invites...

The future of computing lies in the use of multiple computers co-operating in problem solving.

The Science and Engineering Research Council has supported a major research programme in this area. The research has borne fruit.

To help ensure this research is put to use, the SERC is sponsoring an industrial conference - a meeting between researchers and industry - presenting

present research results in the context of a more general review of distributed computing issues.

These include sessions on:  
\* The Future of Local Networking  
\* New Architectures and the Fifth Generation  
\* Multiprocessor Implementation and Applications.

Speakers include both leading researchers and industrialists already closely involved.

TECHNICAL · DECISION · MAKERS · IN · INDUSTRY

## DISTRIBUTED COMPUTING

### A Review for Industry

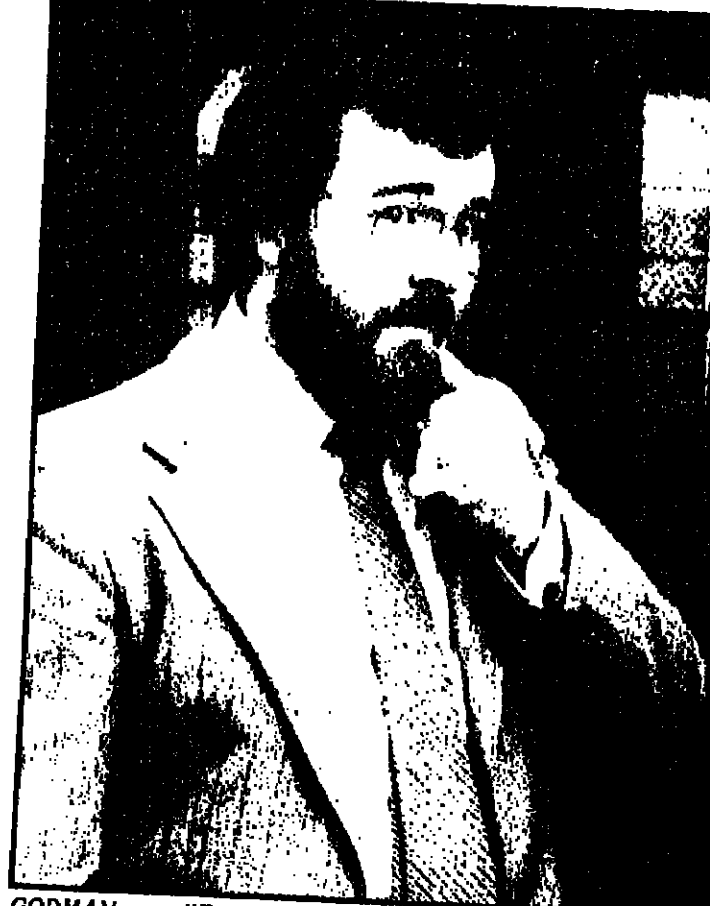
National Computing Centre, Manchester  
3/4 March 1983

An SERC-sponsored conference.  
Registration: £57.50 inc. VAT

Information/Registration: SERC/DCS Industrial Co-ordinator  
64 Newnham St. London W1A 4SE Tel: 01-636 5440

April 1st 1983





GODMAN... "Recent releases show thousand monkeys approach."

Plugging in to hi-fi phenomenon - From page 23

## 'Thousand monkeys approach creeping in'

SSX/VSE (Small Systems Executive/VSE) was announced by IBM in November 1981. It is an operating system that goes further along the conceptual route begun by the SIPO/VS, which were themselves self-documentary systems modules that attempted to allow inexperienced users to install a DOS/VSE system. If SIPO/VS failed, SSX, to a certain extent at least, succeeds. It is a system that can be installed quickly by unskilled personnel, and is indeed aimed primarily at the standalone user with limited skills.

According to McKenna, it is an example of IBM "driving down an 'ease of use' route: SSX uses simple methods to achieve complicated results."

This "ease of use" is largely achieved by limiting the generation options and improving user aids. For example, no JCL knowledge at all is required. Further, operator control is made

simpler by using VSE/OCF to intercept systems messages in order to suppress some, to answer others, and to translate many of the remainder into something more meaningful.

The applications package to sit on top of SSX may come from IBM or a third party supplier. One such product is MSA's SSX/System 43 suite of nine interfaced accounting packages.

MSA is one of the world's largest independent applications software companies, modestly claiming to be "... in step with IBM. And ahead of the rest!"

Since 1965, the company has installed over 6,500 packages in over 4,000 customer sites. Now it sees SSX as an important step forward for both IBM and itself.

Graeme Watson, a systems consultant with MSA (Management Science America) explains the reasoning: "Despite being comprehensive and fairly robust, IBM

mainframe operating software has long been viewed as unnecessarily complicated and unfriendly. Armies of systems programmers, JCL writers, data controllers and the like, have been kept busy for the past 15 or so years persuading hardware in the required way. And this single requirement for high calibre, well paid and often scarce DP professionals is surely a primary cause for the dissuasion of many potential new customers from joining the IBM family of users.

"Now, however, it seems as if IBM has at last seen the light with its development and release of SSX/VSE."

**'Evidence to date suggests that IBM has got it right this time with SSX, and that surely must spell the end for DOS. I doubt if many people will regret its passing'**

SSX is designed to take the philosophy of SIPO - IBM's Systems Installation Productivity Option - one step further. In 1979, when DOS/VSE first arrived on the 4300 series, many users found that they still needed systems expertise despite the SIPO approach. Xephon Technology Transfer, a leading IBM consultancy, reported: "It is not true, however - as some over-enthusiastic IBM DP sales engineers implied soon after the DOS/VSE announcement - that SIPO/VS would allow someone with no experience to install DOS/VSE systems."

"But now DOS/VSE itself has been further refined into SSX/VSE, and this time, according to IBM, the implementation really can be achieved without a systems programmer - and in less than two hours."

SSX/VSE (Release 1) was first shipped in May 1982. Its major objective was to provide a self-contained and pre-generated VSE operating system for the 4321 and 4331 systems, in both standalone and distributed data processing environments; that is altogether easy to install, easy to use, and, above all, stable.

The stability is necessary because IBM does not intend to provide regular updates. Any problems are fixed by object module replacement for items such as prompts, or by a complete SSX replacement for other components.

"The claim of two hours to install SSX has for once, and surprisingly for IBM, been shown to be unusually modest," went on MSA's Watson. "The first commercial installation of SSX in Europe took closer to one hour than two, and was performed by someone with only three weeks' IBM experience."

This installation included MSA's System 43 applications software, and was performed by an ex-Hewlett Packard programmer, Cornelius Lukins, whose only experience with IBM was a short training course. The company in question is Elopak Nederland BV, the Dutch arm of a multinational manufacturer of liquid packaging cartons.

Seven Amot, group DP manager of Elopak's Norwegian parent company, explained: "We needed to implement systems quickly and easily, mostly because the company has expanded rapidly in Europe over recent years. The combination of the System 43 products with IBM's SSX seemed ideal because it meant we could be up and running with the minimum amount of time and effort."

"We picked SSX because it is a tool which will allow applications to grow with our business. We can

grow from a 4321 to a 4341, out any software conversion lems."

Watson believes that SSX is a way forward for IBM, even to the extent that "DOS is dead - live SSX!"

Release 2, announced in October 1982 and due for release a month or so later, will extend the support system in areas of batch support, networking and file support.

"The most significant architecture," says Watson, "may turn out to be the ability to run SSX under VM. Evidence to date," he concluded, "suggests that IBM has got it right this time with SSX, and that surely

spell the end for DOS. I doubt if many people will regret its passing."

Praise for SSX, although spread is not, however, universal. Synapse Computer Services, an independent IBM consultancy, Release of the 4300 mainframe to an early change of rank within the company, and it is the Synapse system software management service was made. This was to fill a vacuum created by a void in the number of computer installations caused by the change of hardware.

To date, Synapse has received little demand for SSX. "I spent a lot of time in early 1982," says director Mike Godman, "telling prepared for SSX. Our customers expressed interest in but were put off by the limitations imposed. The message SSX seems to be very low."

Perhaps, then, the best of it is yet to come, and will be realised only when more software companies join MSA in the production of SSX-based applications software. In the meantime, DOS/VSE remains the main alternative.

According to Godman, VM "still the best value for money operating system on the IBM mainframe, and one of the most powerful systems to work on." It may be because VM is not a true operating system, in that it does not supervise units of work. It does do is to allow multiple operating systems to manage different resources on a single machine. It operates by simulating the hardware (the Virtual Machine), so that each operating system thinks it is running on its own machine. The inevitable result of running another operating system under VM is increased overheads.

Nevertheless, VM is becoming increasingly important. It has been the subject of much research in the last few years when it was developed primarily as an internal program development tool by IBM researchers, but was then largely neglected during the 1970s.

During the last three or four years, however, IBM has been pushing it hard, and, according to Xephon's research, it is now installed at half or more of the larger DOS and OS/VS sites.

"Recent releases," says Godman, "show signs of the 'thousand monkeys' approach to software development creeping in - a development which is a direct consequence of becoming a 'Strategic Product'."

The major strategic VM goods appear to be ISPE, which will almost certainly become a building block for many more systems. It has already ousted IFP and VMS.

## SOFTWARE MONTH

# Improved CICS scares third party suppliers

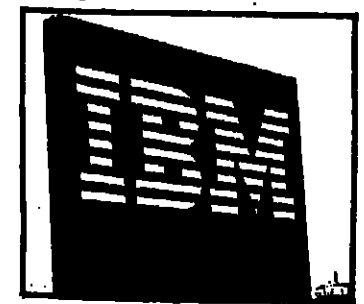
CICS (Customer Information Control System) is IBM's mainline TP monitor. Its appalling early track record led to the rapid development of third party competitive software, and indeed many an IBM software house owes its very existence to the poor quality of such early IBM software.

In recent years, however, CICS has been improved to such an extent that some third party suppliers fear that they are slowly being squeezed out by IBM. This may be true.

"They are competing at too low a level," declares Liam McKenna, IBM UK software products marketing manager.

The bugs that appeared in the early 360 versions, which he readily admits were "horrific," have long since been eliminated. "Since 1975," he continues, "we have sought to stress that CICS, and IMS, are the true interfaces to IBM systems. The real area for competition with IBM is not here but in the applications software to run on top of CICS."

This is a view shared by Cliff Smith, director of sales with Computer Associates, a leading US IBM software company (whose latest product, the CA-Scheduler,



an automated scheduling and operations management system, needless to say includes a CICS interface).

"There is no real alternative," he maintains. "CICS is the de facto TP monitor for IBM equipment, and what we are seeing now is a polarisation towards the one system: its competitors are falling by the wayside."

The latest market survey from Xephon Technology Transfer (*The IBM Mainframe User*) provides startling corroboration. Over 90% of the current IBM users that took part in the survey and have a TP monitor use either CICS or IMS/DC. And almost 80% of those use CICS.

In a similar survey in 1981, only 86% of the users used an IBM product. "In the past five years or so," concludes the Xephon report, "users have tended to abandon the independent monitors and return to the 'safety' of IBM's own software. This is probably not because IBM's software is terribly good (though it has improved immeasurably), but because, with the growth of interactive applications, the TP software has become central to many user's day-to-day production work - and, correctly or incorrectly, users tend to see independent software as a 'high-risk' option, which they are not inclined to adopt for their more critical systems."

Smith offers two further reasons for the ultimate and inexorable success of CICS over its rivals. The first is simply that it is not so much the superiority of IBM's software, but the superiority of IBM's marketing "that will squeeze out the CICS alternatives."

The second is the precise reason that has prompted his own company to specialise in the produc-

tion of applications packages to run on CICS rather than its alternatives: the force of economic reasoning. Because the majority of users already use CICS, the majority of new applications packages will be written primarily for CICS. And because the majority of applications packages are and will be written for CICS, new users will have an even greater incentive to choose the IBM monitor over its rivals.

Once this process starts, and it is already clearly well under way, the CICS alternatives will be faced with an increasingly difficult and uphill struggle.

The choice of database for any IBM mainframe installation is of importance and concern to all users. The overall cost of both the software itself, and the man-hours of use invested in that software make it unlikely that any company can afford a second choice. Conversion costs of between hundreds of thousands and even millions of pounds have in the past been quoted for a user to abandon one database in favour of another.

More than any other area, then, database software is the choice that must be right first time. Once bought, users are more or less locked into the chosen package.

The problems inherent in the choice of software are then exacerbated by the very nature of IBM itself; for any competitive DBMS will run the continued risk of becoming non-compatible with mainstream IBM software, and indeed, the hardware itself. And while many people make an excellent living from forecasting the future moves of this monolithic structure, very few are proved correct.

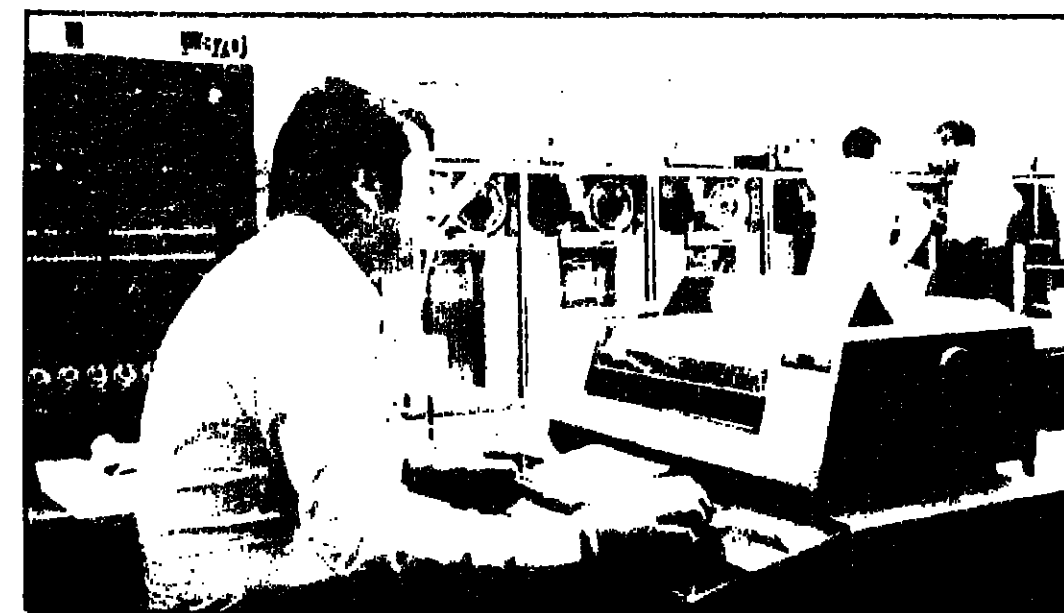
The recurring rumours of new developments from IBM are merely the natural product of the valid fear that afflicts all IBM database users: and more especially the users and producers of competitive DBMSs.

Even "loyal" users have their doubts, and wonder whether IMS, DL/I or VSAM will emerge as the future IBM standard; or indeed whether any of them will survive the potential competition of the new relational hierarchies inherent in the SQL/DS query language. SQL/DS (pronounced "Sequel") is a product from a long line of research, including the famous, or infamous, System R. It is perhaps a product for the future rather than the present, with nearly everybody, users and systems houses alike, waiting to see what happens; and particularly what effect it has on existing IBM products.

Xephon Technology Transfer suggests that "The real interest behind SQL relates to its rather distant relationship to DL/I. SQL does not require DL/I, though it can use extract files from it to answer enquiries. It thus re-introduces the question: is DL/I limited in its tenure, and for future systems might SQL be a way around it?"

Xephon concludes: "We suggest that any VSE user interested in database keeps a closer eye on SQL, partly for its own potential use and also for any change of direction which it might signal."

DL/I and IMS/DB have two major advantages: they are relatively easy to program, and they are the official IBM offering for DOS and MVS users. Their main weakness is a structure that can lead to problems with a complex database; indeed, it is possible to lock the



IBM wants no rival database systems in its big installations.

entire database with a single online update that generates dozens to hundreds of extra I/Os. The answer is clearly for any new user to keep his database design as simple as possible, and in this way develop a reasonably efficient, reliable and easy to use database.

The main third party competition comes from Cullinane's IDMS (Integrated Database Management System); from Software AG's Ada-

bas (Adaptable Database System); and Cincom's Total. This latter is the most successful to date, probably because, unlike some of its rivals, it does not attempt to offer all things to all users.

Complementary products being developed by Cincom include a relational superstructure and a query language. IDMS is the only one of the three that adheres to the Codasyl standards, and includes,

perhaps because of this, some advanced structural capabilities. Also from Cullinane is what is claimed to be an advanced data dictionary, and a query language called English that attaches to IDMS.

Finally, Adabas is the newest of the three, and leans more towards a relational superstructure and a query language. IDMS is the only one of the three that adheres to the Codasyl standards, and includes,

stead, a fairly high level programming language called Natural can be used for the more simple ad-hoc database enquiries.

But for the future, McKenna is quite definite in his views. To begin with, he virtually dismisses alternative DBMSs; which is unsurprising for the representative of a major company that has always viewed rivalry, especially in the database area, with particular distaste.

Of IBM's own offerings, he says, "VSAM is not an alternative in IBM's future database developments. VSAM is not a database: it's a Virtual Sequential Access Method. If he wanted to use the user could write his own database and then use VSAM to access it."

VSAM has been IBM's recommended database management system since the early 1970s. But it works with, and not instead of, a database. It is, for example, the only disc access method to support the DL/I database management system.

"DL/I," continued McKenna, "is our recommended database for DOS users, and IMS is our recommended product for MVS users."

"To summarise, in the combined area of TP and DB, we would recommend that DOS users employ CICS and DL/I; and that MVS users employ either CICS and IMS/DB, or IMS/DB and IMS/DC."

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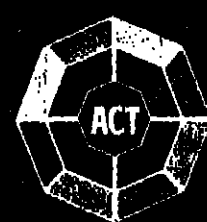
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# DP departments must prepare now for the PC

OVER the last month, I have been evaluating the IBM Personal Computer, and looking at how it is likely to be used in the corporate environment. One thing is certain - DP departments had better start preparing now. Users need a lot of support. Today, this is provided by importers such as Ferrari Software and Electronic Office Services, but before long, DP will probably have to take over the task.

## SOFTSELL

The first thing I looked at was how the PC will be used within corporations. Most of the literature provides a lot of detailed technical information, such as its use of the Intel 8088 chip, and how the basic supports 200 by 640 pixel high-resolution graphics. Clearly, you can't draw many useful busi-

ness conclusions from this sort of data.

For the next year or two, the main corporate applications will be few, and fortunately comparatively simple. Bob Woodland, chairman of Feltham-based Ferrari, explains: "In order of popularity, they're spread sheets and word processors, followed by personal database systems, business graphics, and then communications - especially 3270 and Async terminal emulation, and batch transfer of text and data between micros or micro and mainframe."

There are a couple of surprises regarding what people won't be much interested in doing. In particular, programming is not of great interest. Also use of traditional accounting applications, such as those provided by Peachtree, Tabs, and Systematics International, will be very limited in large corporations.

Much of the software needed is already in place, provided either by IBM or from third parties. Software is taking longer (see Figure 1). Unfortunately, in their frantic hurry to release PC packages, vendors are severely compromising their QA standards. Bugs, poor and confusing documentation, and unnecessary difficulty in use, are

the order of the day.

Woodland correctly points out that such problems, however, are common for a new machine, and that the passage of time will cure them. But certain other problems will not go away.

Professional computer staff are and will be needed to provide the solutions.

Don't suppose that because the PC is a personal computer, it can be installed by the users themselves. You need a lot of technical know-how to do this, as shown below in "Concepts and know-how."

As with most corporate micros, initial PC usage is generally comparatively simple, but as users become more familiar with their applications, they become more demanding. Tony MacLaren, managing director of City-based Electronic Office Services, finds that users need help on complex

Spread Sheets: Visicalc, Supercalc  
Word Processing: WordStar, Easywriter, Visiword\*  
Database: PFS\* DBMaster,\* VisiFile, DataStar,\*  
Graphics: VisiTrend/Plot, PFS Graph\*

Figure 1. Availability of some major packages for the IBM PC. Items with an asterisk are due for release by second quarter of this year; others are available now.



David Ferris is a software industry consultant based in San Francisco and London. Covering technical and marketing issues, he assists hardware, software and venture capitalist firms.

formatting and mass-mailing commands for their word processor, how to model certain spread sheet functions, or how to add colour graphics to their database package. Not surprisingly, he finds that the more experienced the user, the more difficult it is to satisfy their requirements.

Today, users are often prepared to educate themselves, battling through whatever documentation happens to be available. As micros proliferate, they'll become more demanding.

Thus, the spread of the PC throughout corporate environments is likely to be accompanied by user frustration. Discrete DP managers should start preparing their organisations now.

David Ferris

## Package immaturity

WORDSTAR is the market leader among microcomputer word processors, and for good reason is widely regarded as an excellent and powerful product. It has recently become available for the IBM PC, and is selling very well. However, the PC version has certain shortcomings which reflect the low quality assurance standards common among PC packages:

Code bugs. Bug reports are common among WordStar PC users. For example, the first letter I passed to the spelling checker caused an unrecoverable crash.

Documentation bugs. These vary from instructions using non-existent switches to incorrect descriptions of procedure that simply don't work.

Poor tailoring to the hardware. For example, help screens and most of the documentation make no reference to the special function keys and the numeric key pad, even though the software itself takes advantage of these additional keys.

Confusing, ambiguous, or misleading instructions. For example, "replace page 8 of Table Of Contents" actually means "replace the eighth page, page XIII"; or you're told that you need three diskettes to run the spelling corrector when in fact you often only need one.

## Concepts and know-how

HERE are some of the concepts and know-how you'll need to get your IBM PC working.

1. The varied world of diskette formats - for example "hard-sectored" versus "soft-sectored" diskettes, and Osborne CP/M versus IBM 5 1/4 inch standard PC format. Choose the wrong one and you'll be in trouble.
2. Formatting diskettes - preparation of blank diskettes.
3. Special printer characteristics. For example, whether a control-L character must be sent to insert line feeds; page length how to inhibit premature offline messages by putting sticky tape over the printer sensor.
4. Terminal control characters. For example, what character must be sent to clear the CRT screen.
5. Use of a text editor.
6. Set up of JCL files to automatically execute on power-up.
7. Slot number on processor bus.
8. Ascii files, DJF format files.
9. Installation of CP/M and clock processor boards.
10. Copying, backup, and recovery of diskettes.
11. Familiarity with the individual software packages required by the user, to set up an initial sample application tailored to the user's needs. For example, a Visicalc projection, a customer list maintenance system, or a mass-mailing word processing system. Someone has to help the user set up the system. This requires knowledge of a mass of poorly co-ordinated information. Today, the computer dealer provides this, but soon this charter is likely to pass to DP.

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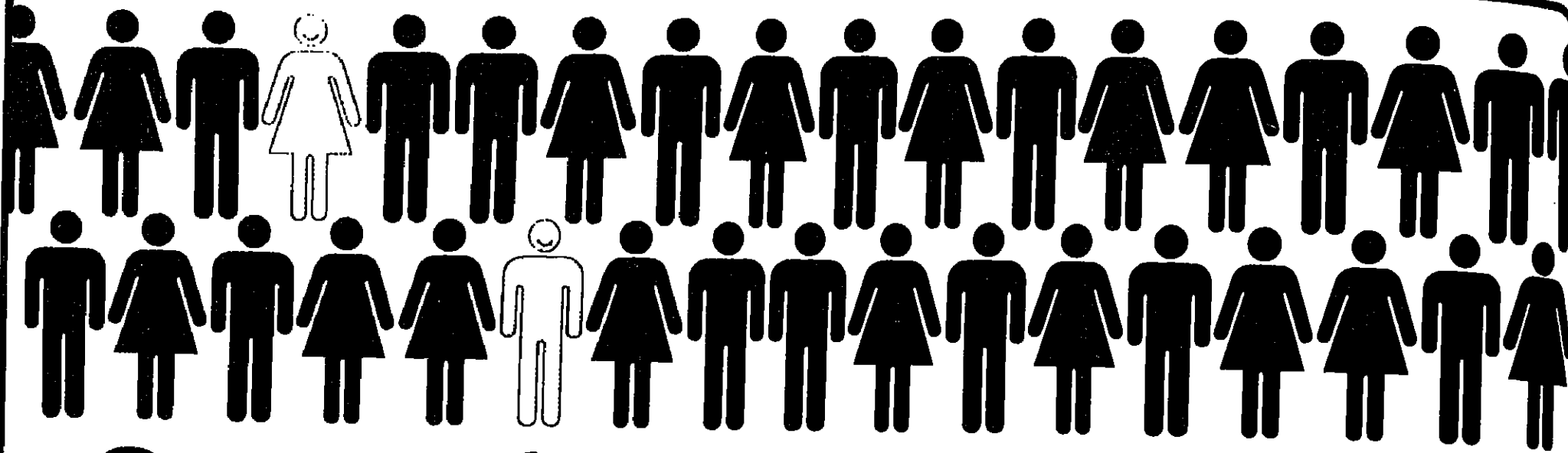
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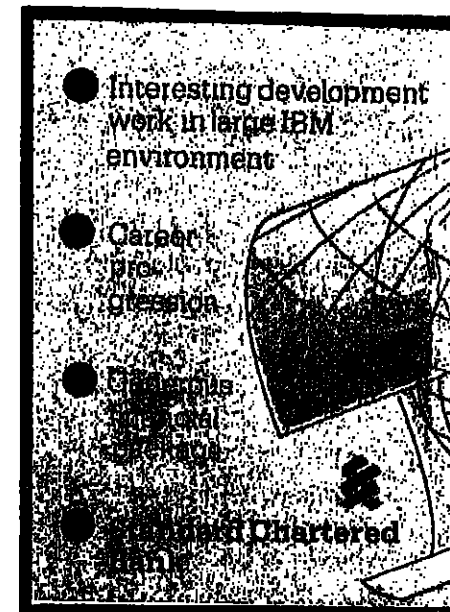
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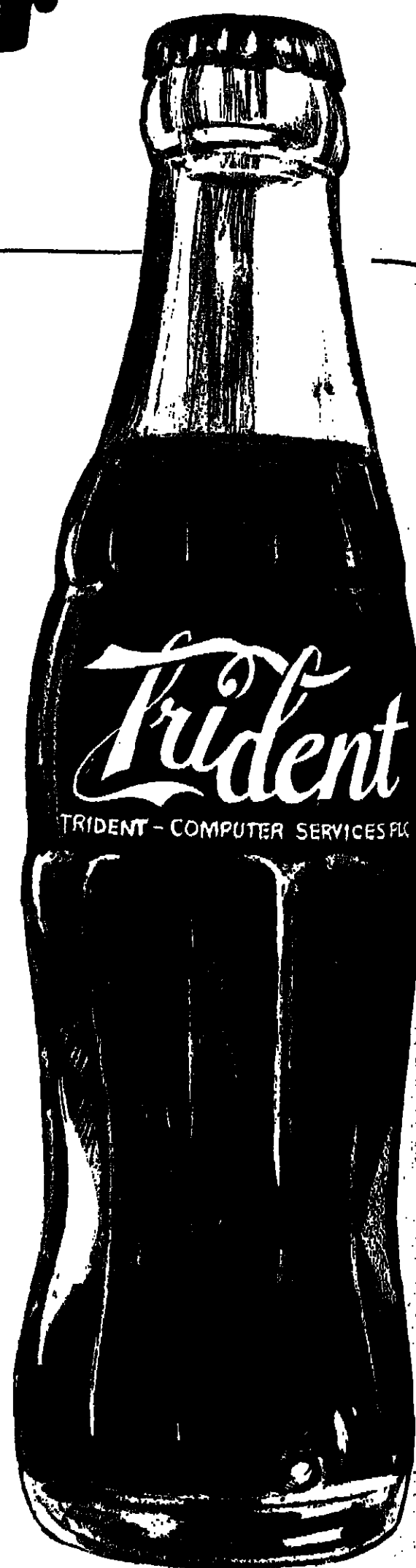
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## MVS/JES3 Support

London £2000-£2750 per month

We are seeking three Systems Programmers or Senior Systems Programmers to work on our Client's 3081-based data centre in London. One of the positions will be primarily concerned with the installation of Program Products, together with such duties as generating IOCP's. The other two positions will be in the diagnostics group, one of these will require good knowledge of MVS internals the other of JES3 internals (JES2 internals knowledge would be acceptable). Each of these assignments is open ended with an initial commitment of 6 months.

CDS is an Anglo-Swiss Consultancy specialising in systems programming and DB/DC application development. For further details of the above positions or for an informal discussion on future European or UK assignments please contact Mike Shine at our UK office - Telephone: (0276) 681261 (or 01-276) 61808 during evening/evening. Telex 858062 CDS Limited, 19A Park Street, Camberley, Surrey GU15 3PQ.

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Candidates for the post of Demonstrator/Senior Demonstrator will be expected to assist lecturers in the teaching and practical work of the Department and to be particularly responsible for the supervision of students in the Department of Computer Science or a closely related subject.

Salary scales will be in the range: Lecturer £15,500-£22,000 per annum on a scale rising to £22,000-£25,000 per annum; Demonstrator £10,000-£12,000 per annum.

Applications, together with the names of three referees, should be sent to the Director of Studies, Department of Computer Science, University of Liverpool, PO Box 147, Chester, CH1 9JL. Interviews may be arranged. Early reply is essential.

University of Exeter  
LECTURER IN COMPUTER SCIENCE

Applications are invited for a Lectureship in the Department of Computer Science, tenable from 1 October, 1983.

The research interests of the Department are in the areas of artificial intelligence, design and formal aspects of programming languages, data bases and information retrieval, distributed computing and computers in education. However, well qualified persons in other areas of computer science are also welcome to apply.

Commencing salary will be within the range £8,375 - £9,800 p.a. on the scale £8,375 - £13,500 p.a.

Further particulars may be obtained from the Personnel Office (Appointments), Northcote House, The Queen's Drive, Exeter, EX4 4QJ, to whom applications (in duplicate) should be forwarded by 11 March 1983, quoting reference No. 2229.

(2471)

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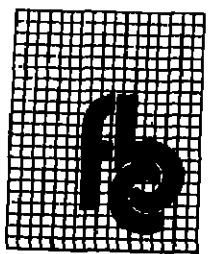
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(2514)

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Applicants for the post should have a thorough practical knowledge of Data Processing, hold a relevant senior position and be able to demonstrate an aptitude and enthusiasm for audit work. The successful applicant will be a member of a relevant Computer Institution and/or hold a recognised Accounting qualification. Temporary housing will be available up to one year in approved cases along with generous removal and disturbance allowances together with legal fees on house purchase up to £1,500. Candidates should also have transport available for Council business for which an essential user allowance is payable. Please contact the Chief Personnel Officer, Council Offices, Wirral, Merseyside, CH92 9B31 Ext 171 for an application form and further details. Closing date: 15th February 1983.

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### Analyst/Programmers

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Around 3 years COBOL experience with systems design knowledge

### Systems Programmer

up to £11,500

Minimum 2 years experience in one or more of the following:  
• VM and DOS/VSE • MVS/JES2 • SHADOW/TOTAL/CICS • TSO

### Operations Analyst

up to £9,500

Minimum 2 years practical experience with VM/DOS/VSE or MVS/JES2. Must be capable of acting as Deputy to Computer Manager

Our client is part of a major international group serving worldwide markets in the pharmaceutical, agricultural and chemical fields.

They are based on the South Coast and are committed to the need to provide effective information systems and support in a growing and profitable business.

Successful candidates will find satisfaction in developing and supporting an impressive and growing real time DB/DC environment using COBOL, SHADOW and TOTAL with development undertaken on-line.

The installation has a 370/158 and 4341, which are due to be replaced early in 1984 with a 3083.

If you believe you can fill one of these vacancies, and wish to join a stable and secure company, please telephone for an application form, or write including brief career details and home and office telephone numbers, immediately, in full confidence to SARAH KENNEDY, quoting reference number G1104, at the address below.

**BIS Applied Systems Limited**  
York House, 199 Westminster Bridge Road,  
London SE1 7UT. Tel: 01-633 0866

(2512)

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IN JOB SPOT  
PHONE  
JAMES  
ATTELLEY  
01-567 5541

**KCB**

MICROS LIMITED

**SOFTWARE SUPPORT  
PROGRAMMER  
TOP SALARY**

Since the company's formation in 1980, KCB Micros Ltd have seen a dramatic growth in their sales of micro-computers and associated software and peripherals. This success has created a ground floor opportunity for a Software Support Programmer to install and manage the company's software both internally and in a customer support role. Candidates should be adaptable and communicate with proven experience of programming in Basic. A knowledge of other high level languages, though not essential, would be useful. In addition to an excellent salary, which is in a range according to experience, it is envisaged that a company car will be provided at a later date.

LOCATION: SLOUGH

JA812/1

**TREBOR**

**PROGRAMMER  
c£9,000**

Trebor Limited, a household name in the manufacture and wholesales of confectionery are seeking to expand with the addition of a Programmer to work as part of a team in their IBM 4341 installation. Candidates should have spent at least two years in a commercial environment using Cobol. Although not essential, preference will be given to those applicants who have gained their experience on IBM 4300 series mainframes running under DOS/VSE and VM utilising CICS and DL/I. As part of a successful organisation the department offer opportunities for rapid career development and provide excellent conditions normally associated with a company of their standing.

LOCATION: ESSEX

JA813/2

**dp**

Confidential Reply

**SYSTEMS DESIGNERS  
to £13,500**

Our client has an international and dynamic reputation for designing and building fully integrated software and engineering systems. New orders have provided interesting opportunities for Systems Designers to work on the development of display and data handling systems for advanced technical applications.

The successful candidate should have around seven years' systems design and implementation experience, a developed understanding of real time software in a mini/micro environment, and an ability to convey ideas and concepts effectively. Additionally, some knowledge of hardware and electronics would be advantageous, but not essential. Company benefits are generous including relocation, flexible working hours and five weeks holiday.

LOCATION: ESSEX

JA815/3

**S**

**PROGRAMMER  
c£8,000**

System Aid, a leading software house specialising in the travel industry, supplies reservations and booking administration systems to a wide range of tour operators and ferry companies. A Cobol Programmer is required with around three years' experience preferably on the ICL 2900 or MB 80 range. The successful applicant will be encouraged to broaden their technical horizons by participating in a wide variety of projects which are constantly under development. Currently, these include VIEWDATA-based systems. An attractive salary package includes annual profit sharing, non-contributory pension and life assurance, five weeks annual leave and a holiday discount scheme.

LOCATION: WEST LONDON

JA819/4

**NCR**

**SYSTEMS AUDITOR  
attractive package**

NCR - One of the world's largest computer companies seeks a Systems Auditor for the European Region. Corporate Audit Group based in London is a senior member of the team the auditor will undertake analysis, audits and development of EDP systems plus occasional related operational and financial functions. Applicants will ideally have a proven track record in computer audit although training will be given to those systems analysts with a comprehensive understanding of EDP and a knowledge of business practices, procedures and controls. In addition to an attractive salary and benefits package there is the opportunity for regular world-wide travel.

LOCATION: LONDON

JA819/5

**dp**

**CONSULTANTS  
TO £17,000 + CAR**

Our client is one of Europe's leading systems consultants with a commitment to providing quality software services. Increased business has created a requirement for Consultants to work on a number of projects within a complete range of end-user applications and software. The successful candidates will have proven ability in any of the following areas:

• DATABASE TECHNOLOGY  
• REALTIME SYSTEMS  
• MINI/MICRO HARDWARE (preferably DEC)  
• ASSEMBLERS FORTRAN COBOL BASIC  
In return our client offers excellent salaries, in a range according to experience and a comprehensive benefits package.

JA819/6

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or 01-840 0077 (after 5.30)

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I am interested in Ref \_\_\_\_\_

JA819/7

**Computer Weekly**  
reaches more  
Systems Analysts than  
its nearest competitor

**SYSTEMS ANALYSTS**

It also reaches more Programmers, Operations and Data Processing, than any other computer publication.



# Senior Systems Engineer

**HEWLETT PACKARD 3000  
To £15,000 South Wales**

As a major industrial group, our Client has made substantial investment in the area of highly advanced computer technology, and is now poised ready for further significant development. A key element will be the implementation of an innovative UK wide communications network based around 3-4 large H.P. 3000 computers.

To ensure the success of this important project, our Client is seeking to recruit the best available in terms of Software Engineering skills. Consequently, they seek an individual specifically with in depth experience of Hewlett Packard 3000 Series, with communications experience, to take control of the technical aspects of the project, as well as operating on a consultative basis throughout Group Companies.

This is undoubtedly a key appointment for the Company, and every effort will be made to attract an individual with not only the high technical expertise required but also the interpersonal skills to ensure successful interface at all levels.

In recognition of the skills required, our Client is prepared to offer an extremely attractive salary plus large Company fringe benefits which will include substantial assistance with relocation.

For an interview and further information regarding this unique and challenging opportunity, contact **Peter Lees** on **021-236 3781** (24 hour answering service) or 0902 632141 (Evenings and Weekends).

Technical, Sales & Management Appointments

**FOR**  
Specialist Computer Recruitment Ltd

**SOUTH**  
James House, 48 James Street,  
London W1M 5HS  
01-935 0671/486 0461

**MIDLANDS & INTERNATIONAL**  
35-37 Great Charles Street,  
Queensway, Birmingham B3 3JY  
021-236 3781

**NORTH**  
International House, 84 Deansgate,  
Manchester M3 2ER  
061-833 0427

**BELGIUM**  
Avenue Louise 327,  
Boite 4, 1050 Bruxelles  
010 322-640 7161/71

**HOLLAND**  
Willemsparkweg 92,  
1071 H.M. Amsterdam  
010 3120-760847

(2400)

## Systems Planners

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**Just see what it could mean for you . . .**

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- \* Good choice of housing and schools
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- \* First class motorway/rail links

At W. H. Smith we are heavily committed to the development of our hardware and systems over the next 5 years. We seek experienced Systems Planners to join our evaluation team, in particular to make significant contributions to such areas as . . .

**Point of Sale Systems** — evaluating and selecting suppliers and equipment and enhancing pilot schemes through to implementation. We are well advanced in our programme of introducing a nationwide POS and electronic data capture system.

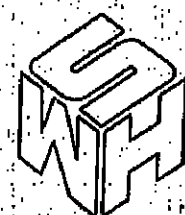
**Mainframe Development** — we are currently upgrading our ICL 2900 to meet our requirements over the next 5 years. You will be

involved in capacity and configuration sizing, acceptance testing and performance tuning.

We seek experienced Systems Planners, preferably educated to degree level, with the flexibility to make a varied individual impact within a dynamic team. Experience should include extensive distributed network and/or mainframe development as appropriate.

For more information please telephone Ian Battersby on Swindon 36271 ext. 354.

Alternatively please send full career details to: J. Hanneford-Smith, Senior Personnel Officer, W. H. Smith & Son Limited, Greenbridge Road, Swindon, Wilts. SN3 3LD.



# W.H. SMITH

*Applicants*

## Opportunities in the USA!

We have been retained by a major Software House in the United States of America to supply 20+ experienced computer programming staff for contracts based in Chicago, Philadelphia & Baltimore locations. The start dates are now until June 1983. The programming expertise required is as follows:

- a) ICL or IBM COBOL with IDMS
- b) IBM COBOL with Adabas
- c) IBM COBOL with IMS or DL1
- d) IBM COBOL with CICS/DL1
- e) IBM COBOL with PL1
- f) IBM SYSTEM 38 RPGIII
- g) IBM 8100 DPPX COBOL
- h) IBM COBOL + Any other Real Time or Data-base exp.

The contracts are for single status only and will be for at least six months duration with the probability of extensions.

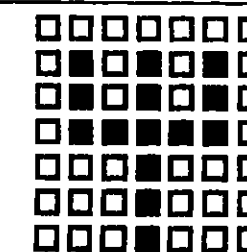
The package will include:

- ★ Good rates of pay
- ★ Accommodation provided
- ★ Medical insurance
- ★ Return air fare
- ★ Company automobile facility
- ★ Legal & tax advice

Programmers who are currently in permanent employment are welcome to apply for these contract positions.

Interviews will be conducted over the next four weeks at our head office in Farnborough, Hampshire.

To discuss these exciting opportunities please call Steve Whiting on Farnborough (0252) 516141 immediately.



**TRIDENT  
COMPUTER SERVICES PLC**

**WE CARE FOR OUR CONTRACTORS**

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**IBM 34/38 RPG Converters**

**PROGRAMMERS IBM 8100 DPPX**

**ANALYST PROGRAMMER SYSTEL VAX 11/780**

**PROGRAMMERS DATA SAAB**

**PROGRAMMERS PDP 11 with either MACRO 11 or RSX 11**

**PROGRAMMERS MOTOROLA M6800 PASCAL**

**PROGRAMMERS HEWLETT PACKARD 3000 Image view COBOL**

**Various locations**

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Numerous contracts at all levels and most locations for: ICL 2900 or ME 29 with any of the following VME

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Want to go to Florida?

Have you got IBM PL1 or FOCUS, with 5 requirements a day coming in there are only a small selection.

For more information contact Eddie, Mary or Caroline

**on 02403 222201**

or send your C.V. to

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Plymouth House, 7 London Road, Amersham, Bucks HP7 0HE  
Tel: Amersham (02403) 22201



## SOFTWARE and SYSTEMS SALES PEOPLE

MicroPro International Limited, one of the world's leading microcomputer software suppliers and creator of the world-famous Wordstar® package, are expanding their UK operation.

Consequently outstanding opportunities to expand your own career will be likely if you are experienced in software and systems selling, preferably with knowledge of the CP/M market.

Salaries, whilst negotiable, will be in the top bracket and early appointments are envisaged.

Applications with full C.V. information should be addressed to the London office marked for the attention of the Sales Director.

**SECRETARY:** A position is also vacant for a top-flight secretary who can look after all office procedures, preferably with knowledge of German. Salary around £600-£650 per month. Applicants please send C.V.s to the London office, attention Sales Director.



**INTERNATIONAL LTD**  
31 Dover Street, London W1  
Tel: 01-499 5777



## A significant opportunity for a Microcomputer Specialist...

Our client is a recently created division of a major British high technology company which is expanding at a dramatic rate. An important aspect of this expansionist philosophy is the creation of the position of Systems and Software Specialist.

We are looking for a computer professional to become the centre of microcomputing expertise in the division. This significant appointment presents the successful candidate with the opportunity to develop divisional policy on microcomputing, agree and implement standards for information processing, and provide programming support to user departments. In addition to these key tasks you will need to cover a wide range of mini/mainframe applications from design through to implementation and training.

The successful candidate must have up-to-date knowledge of microcomputers

and programming and analysis experience, ideally using both micros and mainframes. Experience of C/P/M based software packages is a requirement. This is not a backroom job so candidates must be able to influence people and to communicate lucidly at all levels.

Career prospects are excellent as this position will give you considerable exposure to senior management and it can provide you with a springboard for personal development. Salary and fringe benefits are highly competitive.

To apply, in the first instance either send a curriculum vitae or telephone for an application form quoting reference SS/CT. Please address your replies to John Graham, who is advising the company on this appointment. This position is open to both men and women.



### Cambridge Recruitment Consultants

1a Rose Crescent, Cambridge CB2 3LL. Telephone: 0223 311316.

### SOFTWARE SALES EXECUTIVE (CBT Market)

Following the recent successful launch of Combat, a major new software product in the computer-based training field, we require a self-motivated and ambitious young Sales Professional to help capitalise on the enormous potential of this product.

You will have two or three years' sales experience, ideally in the mini or microcomputer fields, and an awareness of the training needs of major commercial companies.

To succeed you should be capable of identifying and selling solutions to training problems in a commercial environment.

Thorough product training will be given. If you believe you could make a major contribution to our new business as a Sales Executive in this exciting new field, we would like to hear from you.

A good basic Salary, Commission Scheme and Company Car are offered with this position.

Please contact: Mr Ian Inglis, Marketing Manager, Mills and Allen Communications Ltd, 1-4 Langley Court, Long Acre, London WC2E 9JY. Tel: 01-240 1307.

### LONDON BOROUGH OF HARINGEY

TOTTENHAM COLLEGE OF TECHNOLOGY  
High Road, London N16 4RU  
Telephone: 01-802 3111

### COMPUTER TECHNICIAN Grade T.5

Required for the College Computer Unit. The successful candidate will have at least an H.N.C., B.N.D. or B.Sc. in Computing or equivalent qualification and will preferably have an experience of UNIX, C, and PASCAL. A knowledge of RSTS/E would also be considered useful. The post will involve a variety of work including programming, operations management and user advisory/consultancy. Salary scale: £8,398 to £8,822 per annum inclusive of London Weighting.

Application forms and further details from the Principal (OG) returnable within 14 days of the advertisement.

### Andrews-Denton

(International Computer & Executive Appointment)

### CONTRACT STAFF - ALL AREAS

HONEYWELL Analyst/Programmers. L6, L6B, IDS, TDS, TPS, DM IV. ICL Analyst/Programmers. VME/B, IDMS, TPMS, ME29, Range Cobol, TPMS, MINI/MICROS All levels, experienced particularly with CP/M and MP/M.

Contact: Tony Denton  
Day (0273) 721829  
Eve (040381) 2049

ADT Recruitment Limited, 170 Church Road, Hove, Sussex BN2 3FF. Brighton 0273 721800. Employment Agency Licence No. 02105 002

### CHIPPENHAM TECHNICAL COLLEGE

### PART-TIME LECTURER IN COMPUTING

A lecturer is required to be part of a small group teaching a course introducing computers and systems analysis which the College is planning to run for a final semester.

The course is to be run as part of the M.S.C. Training in Computer Skills programme and is intended to lead to the City & Guilds Certificate in Computer Programming.

The system used will be DEC 11/23 multi-user multi-tasking systems. The lecturer appointed would be solely involved in the above course and would be employed for about 10 hours per week for 16 to 18 weeks during the period April to July 1983.

Times of employment would be during the day but would be arranged as far as possible to suit the person appointed. The current rate is £10.12 per hour. For further details and application forms, apply to the Clerk to the Governors, Chippensbury Road, Chippenham, Wiltshire SN16 5SD.

### BASIC-PLUS PROGRAMMER

Goldring Foulds - members of the fast-expanding NORTHERN FOODS GROUP, a company with annual sales exceeding £1,000 million - are leading suppliers of high quality ingredients for the bakery and catering trades. The company has invested considerably in computerisation and wishes to appoint a

### BASIC-PLUS PROGRAMMER

who will be involved in both development and maintenance activity. The successful candidate will join a small but highly motivated team within which there will be considerable scope for initiative and originality.

Experience of programming in basic plus - ideally over a minimum of 3 years - is essential while candidates should also be familiar with file-handling techniques preferably on Syllite 8000 hardware.

Terms and conditions of employment within Goldring Foulds are competitive as would be expected from a group of our size and an attractive salary will be offered with this post.



Should you wish to be considered for the appointment, please send full details of your education, work experience and current salary to:

John Farr, Personnel Manager  
C/o Goldring Foulds & Son Ltd  
Brookfield Drive, Aintree  
Liverpool L9 7AW

### OPERATIONS SUPERVISOR

PROVINCIAL INSURANCE p.l.c. have a vacancy, caused by promotion, for an Operations Supervisor to head one of the shifts in a two shift working environment.

The hardware consists of a Honeywell Level 66 DPS 52 Mainframe with distributed Computer Automation SyFA mini computers.

The successful applicant will have a Honeywell operating background, probably currently a shift leader in a medium/small installation or senior operator in a larger one. The starting salary and allowances will be up to £8,562 per annum. Other benefits include a subsidised house purchase scheme. Assistance will be given with relocation expenses.

Please write giving details of age, experience and current salary to: Mrs. B. Dean, Assistant Personnel Superintendent.

### Provincial Insurance

Public Limited Company,  
Stramington, Kendal,  
Cumbria LA9 4BE

### KRATOS

### SOFTWARE ENGINEER

RURAL STAFFORDSHIRE SALARY £9-10K

Kratos Computer Systems Ltd design and manufacture products and systems based on microcomputers and microprocessors for a wide range of industrial and laboratory applications.

Currently, we require a Software Engineer to join a team developing products for data acquisition and control systems.

Applicants should have at least two years' experience of operating systems and micro assembly programming, preferably on PDP-11, or experience of C, Pascal or Fortran would be an advantage.

Please write or telephone for an application form to:

Mr. K. J. Bell, Kratos Computer Systems Ltd, 100 Industrial Estate, STONE, Staffs ST16 5LY. Telephone: 0786 612131.

### OPERATIONS SUPERVISOR VDU OPERATORS

Required for a new company in a demanding but stimulating environment. Applicants must have previous experience and for the supervisory post experience of DEC systems running under RSTS-E would be a distinct advantage.

Applicants will be interviewed with a view to:

Salary Scale: £8,398 to £8,822 per annum inclusive of London Weighting.

Applicants should send their application forms to:

Mr. K. J. Bell, Kratos Computer Systems Ltd, 100 Industrial Estate, STONE, Staffs ST16 5LY. Telephone: 0786 612131.

Application Form will be sent on request.

For further details and application forms, apply to the Clerk to the Governors, Chippensbury Road, Chippenham, Wiltshire SN16 5SD.

### SENIOR SALES ACCOUNT MANAGEMENT

£16,000 GUARANTEE

Major International Electronics giant - secure and growing fast (1982 profits increase 20%+) need ambitious career professionals looking for a move up.

Vigorous growth in their computer division will be maintained by shrewd management of a "Bio Chip" user base and aggressive marketing in new business.

They offer: Extensive training  
Competitive products  
First-class support  
Experienced/respected management  
Lucrative financial package  
Excellent career prospects

Are you ready for a challenging career move - Call now:

REF. NS.103

### BRANCH SALES MANAGER

LONDON £30,000

\$32M Corporation selling £70-£300k Systems with an installed base exceeding 1800 are offering this rare management opportunity.

You will lead a team of five senior sales professionals and have total responsibility for achievement of sales targets within budget.

They're offering a generous base salary plus initial guarantee (£22k) and executive car, interviews are being held now so call today!

REF. NS.106

AB EXECUTIVE (WEYBRIDGE)  
0932 41321

### MICRO SOFTWARE SUPPORT & DEVELOPMENT

Industry leader in micro database software opened UK office January - already needing to hire senior support people.

Programmer/Analyst required to support dBASE II users and develop their applications.

If you are the person we are looking for:

- ★ You'll probably know who we are.
- ★ You'll have experience of applying micros in commercial/industrial applications.
- ★ You'll have experience in one or more of dBASE II/COBOL/REPORT GENERATORS/ASSEMBLY LANGUAGES/CP/M.

Growing at the speed we are your career development will be extensive. Planned activities include dealer seminars, software evaluation and novel applications.

Excellent starting package - training in California.

Please reply in writing with full o.v. to:

ASHTON-TATE (UK) LIMITED  
1 Lancaster Park  
Richmond  
Surrey TW9 0AG

### BUSINESS SYSTEMS DESIGNER

£8,000 circa

Leading manufacturer in high technology knitted fabric following reorganisation is currently determining its computer applications strategy: their replacement using interactive processing, etc., on new mainframe computer. The person sought to assist in this challenging opportunity will be joining an enthusiastic compact team and help enhance long-term career prospects.

Applicants must display analytical and methodical approach, with competence in systems design and programming and implementation. At least one year's experience in each. A working understanding of the production and commercial functions is a distinct advantage.

Please send full C.V. and request an Application Form from:

Personnel Executive.

GUILFORD KAPWOOD

Guilford Kapwood Limited  
Coles Park  
Somerset  
Bath BA2 9JL  
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Telephone: 0773 807401  
Telex: 37630

### Customer Engineers

This is your opportunity to join Storage Technology, world leaders in the design, manufacture and supply of IBM compatible data storage products.

With our policy of close co-operation from research and development through to after sales service we aim to ensure that our products meet the real needs of our customers.

That is why we need customer engineers who are a cut above the rest

- high performers to

complement our

reputation and our success.

**High performance professionals for high performance systems**

Naturally, we offer the rewards to match:

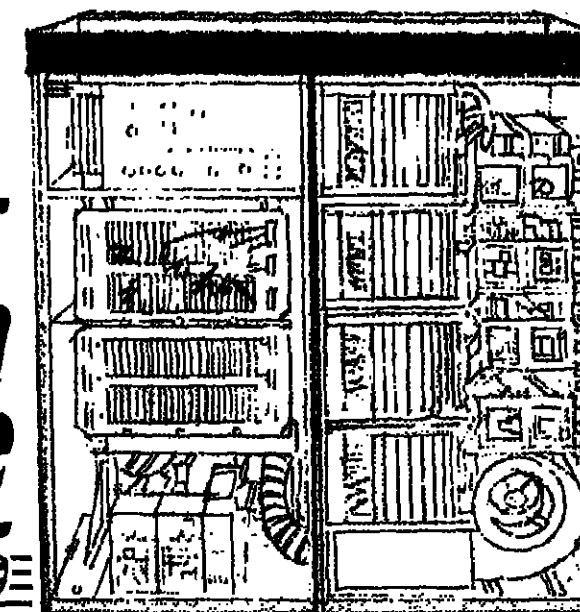
- A highly competitive basic salary
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- On-going product training.

Substantial growth in our installed base in the UK means expansion of our field service

teams countrywide. Many opportunities exist in London and the South and we also have openings in the Midlands and the North.

If you have a good knowledge of IBM and/or IBM compatible systems and peripherals, specifically tapes, disks and printers; if you can combine technical ability with good customer relations skills, we would like to hear from you.

Write now with full personal and career details to our Personnel Manager, Storage Technology Limited, Churston House, Portsmouth Road, Esher, Surrey, or telephone Esher (0372) 67041 for an application form.



STORAGE TECHNOLOGY

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## Young IBM Programmers Management Consultancy

Career Opportunities in

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First-class training  
Excellent prospects

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European Travel

One of the World's top management consultancies seeks Junior Consultants to join high-powered project teams working on assignments throughout the Government, Industrial, Commercial and Financial Sectors.

You will be involved in:-

- ★ The design, development and implementation of complex systems;
- ★ Computer policy planning, equipment selection and installation;
- ★ Feasibility studies and computer efficiency reviews;
- ★ DP organization studies and procedures development.

Ideally you will possess a sound academic background (preferably degree level) and will have gained 2-4 years' experience of Commercial Programming. Strength of personality and communicative ability will be important factors.

Training the first order - In addition to the Company's own in-depth training in Business and Management methods, considerable use is made of external courses in advanced computer techniques.

Prospects are excellent - successful candidates will be expected to progress rapidly into senior DP consultancy positions, with opportunities to diversify into other fields of business.

OTHER BENEFITS include frequent salary reviews on merit, generous travel and accommodation expenses, subsidised BUPA.

If you are seeking a career path that could take you right to the top, please telephone or write quoting Ref CW 2988.

**Lloyd Chapman Associates**

123, New Bond Street, London W1Y 0HR 01-499 7761



# UNITED ARAB EMIRATES

## SYSTEMS ANALYST/ PROGRAMMER

Datamation Systems is the largest and longest established bureau and software house in the United Arab Emirates. The staff of over 90 employees provide for its large client base a wide range of data processing services over various types of hardware.

In our planned expansion programme, we now have an excellent opportunity for someone with strong experience in systems specification, design and implementation. A detailed knowledge of RPG II and IBM System 34 is also essential.

In our growth plans, there is considerable potential for the right applicant.

This is a permanent position with the usual accommodation, leave, travel conditions, etc. applicable in this area.

Applications with cv (treated in strict confidence) should be addressed to:

**Datamation Systems**  
P.O. Box 8040  
Dubai, U.A.E.

Computer Consultants  
& Personnel Services

**TASK  
FORCE**

(0782) 410217  
44 Kingsway, Stoke-on-Trent, Staffs, ST4 1JH

### NORTH MIDLANDS COMMS SOFTWARE PROG.

- Experience of low level IBM Binary Synchronous Protocols  
Duration: Long contract

Start date: Feb/March

### NORTH MIDLANDS DUMP CRACKERS

- VME, UCG and/or Kernel  
Duration: 2 months+

Start date: ASAP

### NORTH WEST ANALYST/PROGRAMMER

- Honeywell Level 6  
- TPS, Screenwrite  
Duration: 3-6 months

Start date: Feb/March

### VARIOUS OPERATORS

- VME  
- Also weekends only (North)  
Duration: 3-12 months

Start date: ASAP/Feb

### LONDON PROGRAMMER/SENIOR PROG.

- IBM OS or MVS  
- COBOL  
- Jackson structured programming  
Duration: 6-12 months

Start date: ASAP

### LUXEMBOURG PROGRAMMER

- Fortran, PL1 and/or APL  
- VME and IBM  
Duration: 12 months

Start date: March

### LUXEMBOURG PROJECT LEADER/ANALYST/PROGRAMMERS

- Siemens experience  
Duration: 12 months

Start date: March

## Communications Software - Varying Levels of Expertise

The complete reorganisation of our Client's European operation, to reflect a new product launch, has necessitated the recruitment of three Software Specialists for their Headquarters in Twickenham.

The Company manufactures, develops and markets information processing and communications products, for use within a wide range of data communication terminals, PABX's and networks.

Utilising DEC PDP11 equipment under RSTS/E as a development tool, products are based currently on Motorola 6802 microprocessors, utilising BASIC+. Current developments include the introduction of Motorola 6809 microprocessor based systems utilising the 'C' language.

Applicants for the above positions must possess solid technical experience in some of the following areas:

- \* REAL-TIME \* LOCAL AREA NETWORKS
- \* DEC PDP \* MICROPROCESSORS
- \* FORTRAN \* BASIC \* PASCAL \* MICRO ASSEMBLER

In addition to the above, applicants must exhibit sound written and verbal communication skills.

As part of a closely knit technical team in an Organisation regarded as market leaders in their own particular field, successful applicants will be given complete product software development responsibilities from the outset.

In addition to a highly competitive starting salary and associated International Company benefits, our Client offers the addition of a Company car at the senior level.

For further information please contact **Adrian Hardy** on 01 935 0671 (24 hour answering service) or Ashford, Middx (07842) 46026 (evenings and weekends) or alternatively furnish him with a Curriculum Vitae to the London office quoting reference AH461.

## NEW PRODUCT LAUNCH

**£11-£16K plus Car**

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Technical, Sales & Management Appointments

**Specialist Computer Recruitment Ltd**

**SOUTH**  
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TECHNICAL AUTHOR or PROGRAMMER with the ability and desire to write a full set of SYSTEMS DESCRIPTION manuals for an IBM SYSTEM 38 installation. Present concept of system includes: programmers' fiscal files, logical views of files, database relationships, output etc. Location: THE NETHERLANDS CT/03

SENIOR ANALYST/PROGRAMMER to join the above installation as ASSISTANT to the SYSTEMS MANAGER. The ideal candidate should already be using RPG III but if a really good knowledge of RPG III is held our client is prepared to train the selected applicant in RPG III. Location: THE NETHERLANDS CT/04

SYSTEM ANALYST to design and implement systems on an IBM SYSTEM 34 in RPG II. Applications will include parts and stock control, payroll, order processing etc. Location: LONDON CT/05

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